

# **Growth of the Internet/Web and Its Diverse Difficulties (Web 1.0 to Web 3.0)**

## **Abstract:**

These days, it's impossible to imagine living without the internet. Using computers connected to the internet, users can share, read, and write data on the largest global platform, the World Wide Web (WWW). Since its inception, the WWW has advanced significantly. This essay provides a concise overview of the web's development from Web 1.0 to Web 3.0. Connecting and obtaining information online was the primary focus of Web 1.0. Web 3.0 is perceived as a web of knowledge, whereas Web 2.0 concentrates on bringing people together. The difficulties and security concerns from Web 1.0 to Web 3.0 are also covered.

## **Introduction:**

The internet and the web are different but connected. The internet is a network of networks where millions of computers worldwide are linked, allowing them to communicate with each other. On the other hand, the World Wide Web (WWW) is a way to access information over the Internet by displaying web pages on a browser. These web pages can include text, graphics, audio, and video, all connected by hyperlinks. Web 1.0, the first generation of the web, is known as the informational web. Users could only read and share information on web pages during this phase. Web 2.0 introduced a read-write networking platform, enabling users to communicate with each other. Web 3.0, often called the semantic web, focuses on personalization, such as platforms like My Yahoo and iGoogle. It transforms the web into language systems that can read and categorize rather than relying solely on human interpretation.

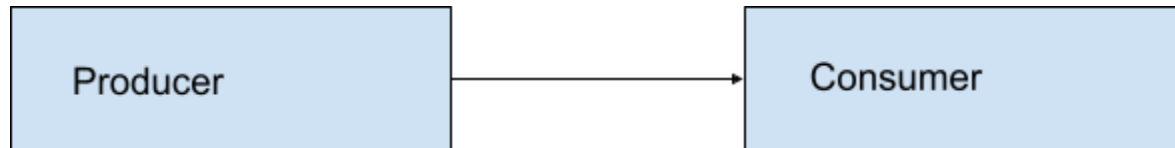
## **DISCUSSION:**

### **Web 1.0:**

Web 1.0 is Tim Berners-Lee's initial version of the internet. It's similar to a read-only web where a small number of people create web pages and a large number of people view these pages via a browser on the internet. Users on Web 1.0 are limited to reading content; they are not able to respond or comment. Web 1.0 makes use of HTML, HTTP, and URI, three fundamental web protocols. There's also usage of some more recent protocols like CSS, XML, and XHTML. Web 1.0 makes use of both client-side and server-side scripting. ASP, PHP, JSP, CGI, and PERL are a few examples of server-side scripting; client-side scripting uses JavaScript, VBScript, and Flash.

### **Reason Why Web 1.0 Failed**

One of Web 1.0's main problems was that it was cumbersome and slow. Users were required to repeatedly refresh web pages in order to view updates when new content was added. Web 1.0 also only supported client-pull (HTTP), which could only be started by the client; it did not support two-way communication.



The primary issue with Web 1.0 was its failure to acknowledge the influence of network effects. Few people were producing content on Web 1.0, while the majority of users were merely reading it. Due to this, the network was sluggish and users frequently didn't have enough resources. Web 1.0, which only allowed reading, disregarded the notion that a network becomes more useful for everyone when more people use it. It did not treat the web as a medium for interaction, but rather as a publishing platform. Web 1.0 relied on an antiquated business model for software and misinterpreted how the web functions, viewing software as an application rather than a service.

### **Web 2.0:**

The read-write web is another term for Web 2.0. Compared to Web 1.0, this is a different method of using the internet. Web 2.0 gives users the ability to write, edit, and update content in addition to reading it. Compared to Web 1.0, this version of the web promotes cooperation and facilitates the collection of collective intelligence.

### **Ideas Behind Web 2.0:**

Six revolutionary concepts introduced by Web 2.0 fundamentally altered the way people communicate online. Among these concepts are:

**Individual Production and User-Generated Content:** This concept revolves around individuals using blogs and wikis to contribute important information.

**Utilise The Power of the Crowd:** This concept, which is frequently implemented through crowdsourcing, entails recycling participant contributions and collective knowledge.

**Epic Scale Data:** This concept centers on user-contributed data that can be creatively combined and obtained indirectly.

**The Architecture of Participation** refers to the process of creating online technologies that facilitate collaborative knowledge construction by making it easy for participants to use.

**Network Effects:** According to this theory, the system gets more beneficial as more people sign up for it, which raises its overall efficacy.

### **Technology Behind Web 2.0:**

**Web 2.0's Technology** The majority of the internet's underlying technologies, including XHTML standards, style sheets, content syndication, AJAX, and flash, are still used in Web 2.0.

Web 2.0 services make use of content syndication technologies such as Atom, RDF, and RSS.

**Ajax-based Internet Technology:** Compared to conventional HTML-based websites, Ajax-based websites are more interactive, quicker, and easier to use. Ajax stands for asynchronous JavaScript and XML. This is accomplished by lowering the quantity of data that must be reloaded in response to a request made to the server by the client.

The Document Object Model, or DOM, uses a tree structure to represent HTML or XML documents.

Representational State Transfer, or REST, is a technique for obtaining data from websites.

**XML and CSS:** XML is primarily used for information management, with the creation of unique markup languages to represent various data kinds.

Like many other applications, Web 2.0 applications may encounter security flaws that could lead to issues. Here are a few typical ones:

### **XSS, or cross-site scripting:**

What occurs is that malicious code can be added to websites that are viewed by other people. This could cause unwanted scripts to be executed in another person's browser, potentially gaining access to private data.

**How to Keep Safe:** We can try to stop these kinds of attacks by verifying and controlling inputs and making sure security settings are in place.

**Forgery of Cross-Site Requests (CSRF):**

What takes place is deceiving a user's browser into acting on a different website while they are logged in. This could result in things being done without their consent.

**How to Keep Safe:** CSRF attacks can be prevented by using unique tokens and verifying requests.

### **SQL Injection:**

**What Takes Place:** In an attempt to access or modify data in a database, hackers tamper with input fields to insert malicious SQL code.

**How to Protect:** You can lessen the chance of SQL injection by using specific kinds of statements and queries.

**Defects in Authorization and Authentication:**

**What Takes Place:** Unauthorised users may be able to access parts of the app that they shouldn't be able to due to flaws in the way we verify who is who and what they can do.

How to Keep Safe: These problems can be prevented by ensuring that users use strong passwords, tightly regulating access, and monitoring who is authorized to do what.

Information Violation:

What occurs is that an application may inadvertently display private information, such as error messages or system information. This could teach dishonest people about the system.

Web 3.0:

Describing Web 3.0 can be tricky because different internet experts have different ideas. Some think of it as a smart and personalized web. According to Conrad Wolfram, Web 3.0 is a stage where computers can create and understand new information, going beyond what humans can do.

Google CEO, Eric Schmidt, says Web 3.0 is about making applications in smaller parts, with data stored online, and they can work on any device like a computer or a phone. These apps are speedy, customizable, and can easily spread through social networks and emails.

Jerry Yang, the founder of Yahoo, thinks Web 3.0 is like a toolbox for making programs and online stuff. He sees it as a place where everyone, not just computer experts, can create programs. Yang believes Web 3.0 will make the internet more of a community where everyone works together, blurring the lines between professionals, semi-professionals, and regular users. It will create a friendly space for businesses and different applications to collaborate.

### **Conclusion:**

Navigating the Evolution: From Web 1.0 to Web 3.0 and Beyond," encapsulates the transformative journey of the World Wide Web (WWW) across its distinct phases. The evolution from Web 1.0 to Web 3.0 marks a dynamic progression in how users engage with the internet, reflecting both challenges and opportunities.

### **References:**

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