

A Neighborhood Centric Approach to Social Networking Based On WEB 3.0 Technology

Dr Rajamohan Parthasarathy¹, Sajib Kumar Joarder²

¹Research Supervisor, School of Information Technology, SEGi University, Malaysia.

Email: prajamohan@segi.edu.my

² Research Scholar, School of Information Technology, SEGi University, Malaysia.

Email: sajibjoarder@gmail.com

Article Info

Volume 81

Page Number: 1850 - 1857

Publication Issue:

November-December 2019

Abstract

Social networking is one of the major part of the new internet based society. Which opened us the new ways of communication, business, education and so one. Previously the internet was just text based HTML pages. Which we used to call web 1.0. The next version was the interactive medium. The way we see internet now days is web 2.0. Every social network is based on this technology. And it is controlled by major corporations. People give their private data to in exchange of free services. These services are often controlled or censored by governments. Web 3.0 is the new standard for internet. It is decentralized and semantic. That means it has AI and the System doesn't have a centralized control node. So with the help of this new technology we can make a new social networking system which will like open source. It will not be owned by any corporation to ensure private data will not be used for corporate gains. At the same time because of the decentralized nature of web 3.0 it can't be controlled or censored by any government or any other controlling body.

Article History

Article Received: 5 March 2019

Revised: 18 May 2019

Accepted: 24 September 2019

Publication: 10 December 2019

Keywords: World Wide Web, Hypertext Transfer Protocol, Hypertext Mark-up Language, Uniform Resource Locator, Uniform Resource Identifiers, Extensible Mark-up Language, Ontology Web Language.

I. INTRODUCTION

Web 1.0 was the birth of the internet WWW (World Wide Web). Web 2.0 was the creation of the services that is available now like Google, Facebook, Snapchat, WeChat, WhatsApp etc. where we got all these dynamic websites and interactive apps that's is used on smartphones today. Now the world is moving towards web 3.0. Wikipedia states: "Web 1.0 is Read only, static data with simple markup for reading. Web 2.0 is Read/Write dynamic data through web services customize websites and manage items. Web 3.0 is Read/Write/Execute." [1].

In recent years social media has gained a lot of importance. It's making them more creative, they are being exposed to technology at a very early age thus making them very interested and expert in new technologies, they are being more connected with friends and society which is making them more confident at the time making stronger bonding with their friends [2]. Different blogs and other Medias helping them to gain more knowledge. People can meet other people beyond their real life circles, spread their ideas with people living all over the world,

can reduce the cost of gaining knowledge by sharing experiences of traveling, reach other people for help on business, education and health etc. [4]. They can share news on social Medias even if the government ban or restrict the news from spreading. There are challenges with personal privacy and internet security too. Facebook faced several lawsuits because of such issues, the verge by Russell Brandom [5].

II. FEATURES OF WEB 3.0

A. Semantic Web

The webpages can read, generate and share its data with each other based on meaning. So that search or sharing would not be done based on keywords or numbers. Extension of WWW that offers an effective way to share data as well as find and combine it from distinctive sources known as Semantic Web (Russell K, 2006). WWW can be located as Web of Documents with limited interoperability, Semantic Web can be interpreted as Web of Integrated, and Linked meaningful Data.

The Semantic Web converts "display only" data into

meaningful info using metadata. The software agents accessed on ontologies, which contains the vocabulary, semantic relationships, and simple rules of inference and logic for a specific domain. They locate and combine data from multiple sources for delivery of relevant information to users [5]. Semantic Web aims at identifying the exact required data which matches the keywords provided by the user. For e.g., if data mining keyword is searched for in Google, Yahoo or other search engines, there are numerous webpages that appear. Some of these pages are just apt and some are of no use. Web 3.0 is considered as the 3rd gen. WWW where machines will be enabled to read the contents of the web like the humans will also follow our directions.

B. Artificial Intelligence (AI)

The web 3.0 will have artificial general intelligence. It means it will be able to learn and the entire network will work like a network intelligence. So the intelligent network will be able to solve any sort of problem that will be thrown to it.

One of the most important characteristics of Web 3.0 will be Web with intelligence, which is referred to as an intelligent web. The web applications would work intelligently because of the intelligent interaction between the computer and the human. Different AI based tools and techniques like rough sets, fuzzy sets, neural networks, etc., will be incorporated with the applications based on Web 3.0. The optimal output is also enabled with or without any user. Even translation can be performed intelligently.

Therefore, by using Web 3.0, the users can use their native language for communication with the others globally [6].

C. 3d Graphics

Many of the web services like Google earth are already using 3d graphics for presenting data. The web 3.0 standard let use 3d graphics by integrating is at the very core of the internet system so that 3d games, geographical data, map locations etc. can be shown in 3d. This future WWW refers to the formation of virtual 3D worlds on Web. This can be used widely in developing tools or applications of Web 3.0. High speed Internet, quicker processing speeds, higher screen resolutions, 3D gaming technology and augmented reality will transform the Web browsing into a 3D experience, where you actually move through the virtual corridors of the Web, as a virtual avatar of your real self [7].

Lately, several internet-based elementary virtual worlds, such as Radar Networks, Second Life, IMVU, Active Worlds, and Red Light Center, have gained much attention by public. For e.g., by March end in the year 2008, Second Life had more than 13 million accounts with around 38,000 users at a particular moment [6]. These kinds of environments enables the users to experience new things in their life. Users can create web avatars and allow them to live in a virtual world. This world enables them to interact with others, socialize, participate in various activities, create and serve different kinds of services using chats in form of messaging, audio or video.

D. Interoperability

Interoperability, collaboration and reusability are three most interrelated terminologies. Interoperability refers to reuse that is referred to as a form of collaboration. Web 3.0 will provide a communicative medium for knowledge and information exchange [3]. Web 3.0 applications once developed makes customization job an easy task as they can work independently on various devices. Such an application can run on various types of computers, microwaves, mobile phones, televisions, automobiles, etc. Pervasive web refers to a phenomenon where the web can be made operational to varied electronic devices.

E. Decentralizations and Blockchain

Thought the internet is physically decentralized but all the services are centralized. Many of them are distributed but not decentralized. The web 3.0 is a decentralized system. With web2.0 we already have distributed system but there is a center node. If that node is down the web service will be down. But web 3.0 is not centralized so it can operate without any single node down. Block chain is one of the core of web 3.0. It's like a link list but at the same time it can store data and code inside it. It's a very secure medium of storing data and code. The security is achieved by cryptography. By using Blockchain technology the web 3.0 has been implemented as decentralized system [8].

III. PROBLEM STATEMENT OR/GAP

The reason behind moving towards web 3.0 is a multi-variant problem. One of the major reason behind moving towards web 3.0 is, this is the best way to compete with the big giant for a startup. By looking back to web 2.0 it can be seen that there is no room for competition. All the big giants are controlling the internet. All the major internet traffic is going through Google, Facebook, Microsoft, Baidu, Amazon etc. people are giving up their data in exchange of free services. These Giants owns all the data. These data are being used to spy on people, to show advertisement. Google and Facebook track peoples' search story, location, travelling records and many others private information. They can even listen to conversations using phones.

IV. RESEARCH QUESTIONS

The following question has been addressed in the following research

- 1: Which technique can be used so that the new social media will not invade peoples' privacy?
- 2: How is it possible to avoid censorship from different government so that people can use social media more freely?
- 3: How is it possible to involve communities in social networking so that it can reduce peoples' interaction with internet and push them to real life community works?
- 4: How is it possible to implement end to end encryption through blockchains?
- 5: How to make all the content smart (semantic) which will understand and filter itself by necessity of the community?

A. Research Objectives

To answer those research questions, the research needs to achieve the following objectives

1: Implementation of blockchain (which is the core of web 3.0) to store data, in order to make private data free of ownership.

2: Implementation of decentralized system (which is another property of web 3.0) in order to avoid censorship and let people have full control.

3: Implementation of open source so no one owns the system, the artificial general intelligence (web 3.0 feature) can identify problems and improvise itself.

4: Making the new social network more focused on community life to make people more social in real life.

5: Making a structure using blockchain in such a way that it will be a community governed/controlled application so the users are in control.

6: Implementation of smart content which will learn using neural network and filter its content by itself.

B. Significance of Study

This research will push social networking to enter the next generation of internet and that's web3.0. With the implementation of web3.0 it's very possible to remove the challenges of the current social networking system which is owned by big companies. This system will be totally open source and an independent body where all the facilities of current social networking will be available. With the implementation of blockchain peoples' private data will be super secure. It will not be owned by any person or company so there is no fear of exploitation even by the government. For example, using all the computing power of the world it's not possible to break the encryption of ethereum (which is an implementation of web3.0 technology). Prevent anyone, even root users and administrators from accessing sensitive information [9]. And the system will be an intelligent which will be able to change and improvise itself.

V. LITERATURE REVIEW

In is the literature review of social media and how it's evolving from web 2.0 to web 3.0. It will provide the view about social media from the point of view of different researchers. It will also provide the limitations of web 2.0 and how can those be solved using web 3.0 technology.

Historical research on web evolution states the patterns with similar phases. Initial research focused on defining the technology, understanding its benefits, and how it will have an impact on business environments regarding opportunities and challenges [10]. Research inquiring about user behavior and privacy issues focusing on knowledge of personal information gathering, and sharing techniques on Web technologies, has also been undertaken. As the Web evolved and the technologies surrounding it became more popular, the focus shifted to security risks, especially focusing on business risks [12].

The extent to which technology has been incorporated into

business activities has created a critical dependency on Information Technology (IT) that calls for a specific focus on IT governance. Various attempts have been made to develop an organizational framework to help businesses to mitigate the risk arising from the use of Web technology. Dawson tried to develop a widely used framework in an effort to help businesses not just to understand and mitigate risks, but also to add business value from using Web technologies. The majority of research completed on Web 3.0 was performed by independent private organizations like Booze & Company; Verizon; Gartner, Clear swift and SEM Logic. Most of the articles aim to define Web 3.0, and rarely address advantages and disadvantages arising from use of Web 3.0 technologies. A study that focuses on defining Web 3.0, identifying the business risks and opportunities arising from the use of this technology.

Web 3.0 is a new concept in the domain of Web evolution. The definition will assist in categorizing the new and developing Web technologies into the correct evolutionary genre. It will also assist in distinguishing between pre-existing and new risks and opportunities arising from Web 3.0 technologies. In order to define Web 3.0 its predecessors, Web 1.0 and Web 2.0, need to be evaluated in order to obtain a full comprehension of how Web 3.0 evolved.

A. Web 1.0

Web 1.0 was a platform through which information could be published in a static form well designed with text and images. It portrayed an environment where information and data were static, and displayed with no interaction between the information and the consumer, and minimal content creators, also known as the read only Web. The protocols associated with this generation were Hypertext Transfer Protocol (HTTP) and Hypertext Mark-up Language (HTML). The HTTP protocol transfers information between a Web server and a Web browser. HTML protocol communicates with the browser, and informs it how to display whatever text, graphics and images transferred by the HTTP protocol.

B. Web 2.0

O'Reilly Media and Media Live International in 2007 first introduced the term Web 2.0 in October 2004. When the inventor of the Web, Sir Tim Berners-Lee, was asked in a podcast what the difference was between Web 1.0 and Web 2.0, he replied as follows (developer Works Interviews, 2006):

Rudman categorizes different classification methods in terms of components or features, technology and programming. Furthermore he summarizes the key features of Web 2.0 sites into three components (Zhang Yang, 2009).

Community and social: The ability of a consumer to view, create, edit and share content by means of the Web. This permits users to study, change and improve content or software (or source-code), and to simultaneously redistribute and re-use it in modified form. This includes the ability to post content in many forms: photos; videos; blogs, comments and ratings on other users' content; tagging of own or someone else's content, and some ability to control privacy and sharing.

Technology and architecture Software and applications with

multiple device and platform compatibility. Software with the ability to deliver rich interfaces operable on any device or platform without the need of additional software installation.

Business and process Cloud technologies, software and resources made available on a network. The software is available on multiple platforms and devices, and is delivered as a service rather than an installed product. More technical features include a public Application Programming Interface (API) to allow third party enhancements and “mash-ups”, and the ability to communicate with other users and colleagues through internal email or Instant Message (IM) systems.

A key feature identified and present in the research that has been reviewed, is that Web 2.0 is able to facilitate a more socially connected Web where everyone is able to add, edit, view and redistribute the information space. Web 2.0 is an extension of Web 1.0 which still operates on the same ideals, principles and protocols, with extended collaboration between consumers, and the ability to harvest and add content by consumers in an intelligent way to enable an enriched experience for the consumer. Comparing the examples listed in Table 1 shows the technologies associated with Web 1.0 and Web 2.0.

Table I. A comparison between Web 1.0 and Web 2.0 technologies

Web 1.0	Web 2.0
DoubleClick	Google AdSense
Ofoto	Flickr
Akamai	BitTorrent
Mp3.com	Napster
Britannica Online	Wikipedia
Personal Websites	Blogging
Evite	Upcoming.org and EVDB
Domain name speculation	Search engine optimization
Page views	Cost per click
Screen Scraping	Web services
Publishing	Participation
Content management system	Wikis
Directories (taxonomy)	Tagging (“folksonomy”)
Stickiness	Syndication

VI. WEB 3.0

The next generation of the Web, Web 3.0, is not represented by the emergence of a new Web but rather an extension and calibration of the technologies already present in Web 2.0. Internet content is becoming more diverse, and the volume of data is getting much larger, which makes management of information more critical. The Web is becoming a platform for linked data. Data is becoming more openly available to consumers, and by making connection between similar data characteristics, the data itself becomes more valuable. The Web is overrun with Exabyte of data, and computers still cannot automate the function of harvesting this information, or of performing complex tasks with it. The need for data structuring and integration is crucial to enable the Web to evolve into its next phase. Even though Web 3.0 will be the next generation of the Web, its definition varies. A variation in names is also apparent, and names include, amongst others: Web 3.0; The Semantic Web; The Transcendent Web and The Web of Things (henceforth referred to as Web 3.0). Even though the names

differ, research shows that all these phrases have the same basic fundamentals. The terms are categorized into 3 subsections, namely, identifiers, languages and structures, in order to illustrate how these technologies interact with each other to form the Web.

A. Section 1: Identifiers

Uniform Resource Identifiers (URI) identifies the name and location of a file or resource in a uniform format. URI’s provides a standard way for resources to be accessed by other computers across a network or over the Web. Uniform Resource Locator (URL) is the address of a specific Website or file on the Internet.

B. Section 2: Structures

Metadata is a term used to describe data within data. It provides information about a certain item's content.

Resource Description Framework (RDF) is a specification that defines how metadata, or descriptive information, should be formatted. The RDF model uses a subject-predicate-object format, which is a standardized way of describing something.

Resource Description Framework Schema (RDFS) is a set of classes with certain properties using the RDF extensible knowledge representation language, providing basic elements for the description of ontologies, otherwise called RDF vocabularies, intended to structure RDF resources (Wikipedia). Intelligent agents are software programs designed to collect information based on the users’ interaction with the Web. They can also act on behalf of the user to perform certain tasks and duties depending on the authorization level granted to the intelligent agent by the user.

C. Section 3: Languages

Extensible Mark-up Language (XML) is used to define documents with a standard format that can be read by any XML compatible application. The language can be used with HTML pages, but XML itself is not a mark-up language. Instead, it is a “meta-language” that can be used to create mark-up languages for specific applications.

SPARQL is an RDF query language, that is, a query language for databases, able to retrieve and manipulate data stored in RDF format (Wikipedia).

The Ontology Web Language (OWL) is a set of mark-up languages which are designed for use by applications that need to process the content of information, instead of just presenting information to humans. OWL ontologies describe the hierarchical organization of ideas in a domain, in a way that can be parsed and understood by software. OWL has more facilities for expressing meaning and semantics than XML, RDF and RDFS, and thus OWL goes beyond these languages in its ability to represent machine interpretable content on the Web (Webopedia).

Wolfram in an interview with Nicole kobie stated that Web 3.0 is where the computer rather than humans, is generating new information. This is supported by Morris’ theory that integration of data is the basic foundation of Web 3.0, and by

using metadata imbedded in Websites, data can be converted into useful information, and be located, evaluated, stored or delivered by intelligent agents [12]. In order for intelligent agents to understand the information gathered, expressive languages that describe information in forms understandable by machines, need to be developed.

With the development of expressive languages Web 3.0 has the capability to use unstructured information on the Web more intelligently by formulating meaning from the context in which the information is published in Veritone. There is a need for Web 3.0 to express information in a precise, machine interpretive form, so that intelligent agents can process this data and not just share it, but understand what the terms describing the data mean.

Booz & Company in 2011 stated that recommendation engines will focus on habits and preferences of users, and in doing so will produce more complete and targeted information. The information of habits and preferences used on a recommendation engine will be collected and stored in a hierarchical manner by intelligent agents. This is what will give Web 3.0 the ability to gather, analyze and distribute data which can be turned into information, knowledge, and, ultimately, wisdom [14].

VII. SOCIAL MEDIA AND WEB 2.0

The technologies we use to communicate, create and organize content it also facilitates capability of sharing it with other people through communities and social network.

“Web 2.0” and “social media” are often interchangeable, though web 2.0 is the web apps (or interactive websites) where as social media is the social aspect of it [14] Web 2.0 is basically 2nd generation of internet where the first generation allows user just to see some text based web sites.

A. There are five main characteristics of social media

Participation: People get encouraged to contribute freely, they create contents and share it to the community.

Openness: It lets people to share other peoples' creations, most social media lets it share contents. There are almost no restrictions for using these contents.

Conversation: It's a many-to-many party communication system. We can say it is a broadcasting method. But a by directional broadcasting.

Community: People from different communities are enabled to form a forum and communicate with each other. For example, people with same interests such as movie fans, political topic, IT experts, and classmates can form groups and communities on almost every social network.

Connectedness: Usually it helps people to get connected with other people, services, new contents, and created by others.

B. Social media issues and challenges

The history of social media is not so long. It's just several years it has started developing. Within this short time, we are observing different types of issues regarding social media. Though different social media faces different types of issues still

we can identify some of the major issues those are very common.

Stalking and harassment - Now a day's social media is facing multidimensional privacy issues. Some of them are related to hackers who's trying to get information about people. These Social Medias have many data about you like peoples' birthday, where do they live, where do they go, personal and family pictures so on. So hacking is a major threat. Being compelled to turn over passwords – The government has enacted The Password Protection Act of 2012 to protect employees from being harassed. There are many cases. NBC (The National Broadcasting Company) asked for their employees to share the password of their social networks.

Big giants often cross the line between effective marketing and privacy intrusion- Facebook accused of massive fraud in a lawsuit filed by Cook County. A Facebook user in Maryland has filed a lawsuit against the social network and Cambridge Analytica for improperly gathering her personal data without permission. Facebook hit with four lawsuits in one week over Cambridge Analytica scandal (Shannon Liao 2018). Not only Facebook other giants like Google is also accused of this. Google ranked 'worst' on privacy (BBC news). Google collects personal data including some one's location, email, text sms and all other sources regarding their services.

The privacy downside of location-based services- most of the today's social media uses location from phones or via IP address analysis. It's very easy to get the location of the person and this is a very big down side of these system. It's not only the service provider who's getting the location data but often shared with other people about the location. For example, Uber services. The driver and the user both know about each other's location. Even the servers are not often trustworthy, and it has three major reasons why they are not trustworthy 1) Most of the providers don't want to take the liabilities of a trustworthy server 2) User are not willing to know what is going behind the seen. 3) If a single server is compromised a lot of user data can be compromised because often these data are not stored on a distributed system.

C. Social media and web 3.0

Simply web 3.0 is the third version of Internet. But it is very complicated to explain the depth of web 3.0. Basically it's a set of technology which allow us the implementation of self-aware web pages (semantic web), intelligent networks (artificial intelligence), and Decentralized implementation of web apps. Basically these are the four properties (tools) which will be used for solving the problems with current social networks.

D. The Key Elements of Web 3.0 Present in All the Observations

The introduction of new programming languages with the ability to categorize and manipulate data in order to enable machines to understand data, and the phrases describing data. The capability of obtaining contextual information from a Web search and storing it in a hierarchical manner, according to similar characteristics for easy and specific retrieval [13]. The ability to obtain information from a bigger and wider variety of sources, including previously walled application. The ability to

create and share all types of data over all types of networks by all types of devices and machines. Web 3.0 will ultimately entail an integrated Web experience where the machine will be able to understand and catalogue data in a manner similar to a human. The data collected will be categorized in a hierarchical manner in order to link data with similar characteristics, and retrieve consumer specific data effectively and efficiently. This will facilitate a worldwide data warehouse where any format of data can be shared and understood by any device over any network. With the adoption of new technologies, organizations are confronted with the new risks associated with these technologies. To lower the risk of exposure to these threats, organizations need to implement some form of corporate governance to guide management as well as employees to act in accordance with internationally acceptable standards and principles.

VIII. CONCLUSION

A. Purpose and Scope

In this chapter it has been tried to introduce some methods and technologies. Then the identification of the right methodology and technology to be used to develop the software. At first the software development method and technique has been selected. Then the selection of technology is done.

B. Prototyping

Prototyping is the process of building a working replica of a system. The prototype is the equivalent of a mock-up in the hardware world. It may be used with the waterfall in a fashion similar to the Boehm Spiral or it may completely replace it. DE Grace says:

"You get some sort of requirements list. Sometimes it is quite informal. If it is for your customer, the requirements could arrive in some sort of memo".

"Next, you transform the requirements into a working model by changing or operating your (prototype) to include them. With a 4GL [fourth generation language], you transform the requirements into language and macro commands".

"With libraries, you write a "driver," the top-level program, and select and insert calls to the library functions that represent the requirements. Then, you integrate them by writing code to handle input, output, error processing functions, operator messages, and connections between functions". "Next, you show the results to the customer or decide whether it is doing what you want. If new requirements emerge, repeat the process".

C. When to Use Prototyping with Objects

Object-oriented development focuses on real-world objects, and will be discussed later. Coad and Yourdon say that prototyping should always be used with the analysis and design portions of OO. "OOD (Object-Oriented Design) prototyping tools may be at odds with your organization's "systems development cycle," in which case the best you can do is use the prototyping tools to carry out the antiquated development cycle

activities a little bit faster and more easily."

"But gradually, prototyping tools are changing the way people build systems. For many, prototyping is the natural way to work. Nobody today would suggest that programs should be developed by keypunching cards and overnight batch compilation; interactive source program development whether from a dumb terminal or a smart workstation--is now the norm, the dynamic way to compose programs. Prototyping tools simply take this concept a step further."

D. Strengths of Prototyping

- Early functionality.
- Provides a process to perfect the requirements definition.
- Provides risk control.
- Documentation focuses on the end product not the evolution of the product.
- Provides a formal specification embodied in an operating replica.

E. Weaknesses of Prototyping

- Less applicable to existing systems than to new, original development.
- Bad reputation among conservatives as a "quick and dirty" method.
- Suffers from bad documentation.
- Sometimes produces a system with poor performance.

Tendency for difficult problems to be pushed to the future so that the initial promise of the prototype is not met by subsequent products.

IX. FINDINGS & TOOLS

Since this system doesn't work like a server client based system a decentralized system must be implemented. And for the client side (iOS, android or web) respective frameworks will be used.

A. Decentralized Blockchain System over Server Client

It's not possible to change the data inside a block chain. The blocks can be updated but the previous versions will always be there. In addition, every transection of data will also be logged. Blockchain is a decentralized and distributed system it would be spreading all over the world so no government is capable of stopping this technology. This will achieve the goal of making the system almost impossible to hack. It will also allow the system to avoid all the government censorship. Even to invoke such a high level of encryption will cost a lot if the implementation is based on server client architecture. The system will be more vulnerable to attacks and information can be easily stolen.

B. Solidity over Node.js for Developing the Decentralized System

The most popular programming language used currently to write smart contracts is Solidity. Solidity is an object-oriented high-level programming language. Its syntax is similar to that of ECMAScript, the standard script for JavaScript. This makes it easier to understand and implement for programmers. Codes

written in Solidity are designed keeping in mind the rules of the Ethereum Virtual Machine or EVM. It is a compiler for the “Ethereum World Computer”. Compared to the other languages which compile on the EVM, Solidity contains a number of important advantages: Complex member variables for contracts are supported [15]. For example, hierarchical mappings and structures. Contracts support inheritance, including multiple inheritances. An Application Binary Interface (ABI) facilitating multiple type-safe functions within a single contract is supported in Solidity. Type safety means that the compiler will validate data types while compiling, and throw an error if you try to assign the wrong data type to a variable. This feature is now supported by Serpent as well. An ABI is the interface between two program modules, one of which is often at the level of machine code. The interface is the de facto method for encoding/decoding data into/out of the machine code.

C. Swift over Objective for iOS

There are several advantages of using Swift over objective.

Readability- Because of the clean syntax, it's easier to read and write Swift codes. It takes a lot less code to implement the same feature with swift than objective c. It doesn't have all those old conventions like “;” in it so it's easier to implement. It's more like conventional English so it's easier to find out bugs and takes less time.

Maintenance- Objective c is highly dependent on c library. Swift doesn't have this dependency, which makes it much easier to maintain swift codes rather than objective c. By design c must need to have two files to improve the build time efficiency. But swift has dropped such properties which makes it more maintainable than objective c.

Safer platform- The swift is a safer platform, objective c is basically depend on c. And by default, c works very close to hardware which is good for low memory and low processing power situation. But this also comes with some drawbacks for example, unsafe access of memory. Which often causes app to crash. Objective c often introduces death-locks.

Speed- Development any app with swift is faster. The IDE is way more user friendly. Moreover, it has some performance improvements too, an object sort in swift runs 2.8x times faster than objective c. if we compare with python its 3.5x faster.

Open source- swift is an open source framework (swift documentation Apple Inc.). So, it's easier to find and eliminate bug easily. So, it has the potential to be used on multiple platform. More over the block chain system is not implemented in swift library. It will be easier to make some new libraries which will allow block chain inside the framework.

D. Android SDK (Standard Development Kits) For Android

For android there are few languages can be considered.

Java- Java is the default official language for Android development. The Android studio is an Amazing IDE which accommodates all the features supported by android.

Kotlin- Kotlin is also officially supported by Google. But it's still an emerging technology. The libraries are not complete yet.

It's similar to java but much easier to implement.

NDK (native development kit) - This is another official android app development method. It's relatively faster and apps can work faster, because a developer can work very close to the hardware. It's strongly recommended for a game developer but for this app implementation advantages of SDK will overshadow the advantages of NDK.

E. Reasons to Avoid the Cross Platform Tools

IOS and android app are traditionally developed by Objective c, swift and java, Kotlin respectively. But there are some cross platform developments tools exists too. The only advantage of these tools is it can be used by all the platform together. But this technique has some huge disadvantages too.

It's not natively supported by the Apple or Google. So with every changes they make in the operating system these tools are not tested and supported like native tools. Which often causes bugs.

It's not possible to use all the features of a new version immediately. Often it takes months to support some important features. Sometimes these features are not available on cross platform ever.

The fine tuning time for cross platform is often longer than usual. Native languages like swift has many features built-in in the system. It often just need to drag and drop to use many features. But implementation of the same feature might need to be developed from bottom up in cross platform.

The java script based cross platform tool basically load a browser screen and just work like a web application. Which may cause the app to run slow. Even it's riskier to use such app because the system doesn't know what it has inside it. Different platforms are completely different from each other. They need to be maintained properly. Often android supported feature might not be supported on iOS. So these issues become a big challenge while using cross- platform to.

X. CONCLUSION

Web 3.0 is still an evolving technology. The standards are evolving to be a fully secure platform. Therefore many tool and technology those will be used in the software development process which are still in their infancy. With time those tools will become more powerful and make the development process easier and faster.

ACKNOWLEDGMENT

The authors would like to thank SEGi University Management, Director and staff of Research Innovation Management Centre (RIMC) & Institute of Graduate Studies (IGS) SEGi University, Head of School & Staff of School of Information Technology (SOIT) SEGi University

REFERENCES

1. Web 3.0. Wikipedia Definitions. Retrieved from http://en.wikipedia.org/wiki/Web_3.0.

2. S. Siddiqui and T. Singh, "Social Media its Impact with Positive and Negative Aspects," *International Journal of Computer Applications Technology and Research*, vol. 5, 2016, pp. 71-75.
3. T. D. Baruah, "Effectiveness of Social Media as a tool of communication and its potential for technology enabled connections: A micro-level study," *Int. J. Sci. Res.*, vol. 2, 2012, pp. 1-10.
4. N. Routley, "Map: Internet Censorship around the World," 2017. Retrieved from: <https://www.visualcapitalist.com/internet-censorship-map/>
5. M. d'Aquin and E. Motta, *Collaborative Semantic Authoring*. IEEE, 2008, pp. 08.
6. H. Xiaoting and N. Li, "Subject Information Integration of Higher Education Institutions in the Context of Web 3.0," *2nd International Conference on Industrial Mechatronics and Automation*, IEEE. 2010, pp. 10.
7. J. M. Silva, "Web 3.0: A Vision for Bridging the Gap between Real and Virtual," *ACM*, vol. 08, 2008.
8. B. Allen, "Web 3.0: using blockchain to build a P2P internet," 2007. Retrieved from: <https://sociable.co/web/blockchain-p2p-internet/>
9. C. Miles, "Blockchain security: What keeps your transaction data safe?," 2017. Retrieved from <https://www.ibm.com/blogs/blockchain/2017/12/blockchain-security-what-keep-s-your-transaction-data-safe/>
10. J. Cui, "Capability Sharing architecture and Implementation in IM or SNS," *IEEE*. 2008, pp. 08.
11. V. Shannon, "A more revolutionary Web," New York: International Herald Tribune, 2006.
12. S. A. Inamdar and G. N. Shinde, "An agent based intelligent search engine system for web mining," *Research, Reflections and Innovations in Integrating ICT in education*, 2008.
13. R. D. Morris, "Web 3.0: Implications for Online Learning," *TechTrends*, vol. 55, 2011, pp. 42-46.
14. W. Kim, O. R. Jeong and S. W. Lee, "On Social Web Sites," *Information System*, vol. 35, 2010, pp. 215-236.
15. D. Nations, "What Exactly Is a Web Application? Improve your understanding of web-based application programs," 2019. Retrieved from <https://www.lifewire.com/what-is-a-web-application-3486637>.