4th AND 5th GENERATION BLOCKCHAIN

Abstract

The fourth and fifth generation of blockchain technology facilitates the processing of Artificial Intelligence, the Internet of Things, the traceability of Artificial Intelligence data, the integration of a file sharing system into smart contracts, the inclusion of IoT device data, the enhancement of traceability of technologies equipped with sensors, etc. By utilizing blockchain technology, businesses of all sizes can improve their security, privacy and data transparency.

Keywords: Blockchain, Artificial Intelligence, Internet of Things, data.

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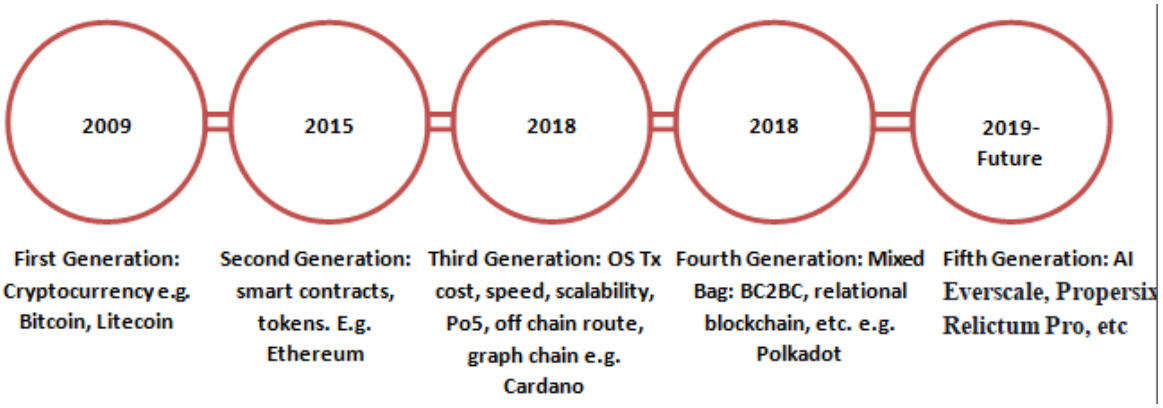
I. INTRODUCTION

As the technology progressed, blockchains had to be more flexible and adaptable to keep up with the advancements. The 4th and 5th generation blockchain helps dealing with Artificial Intelligence (AI), Internet of Things (IoT), traceability of AI data, embedded file sharing system in smart contracts, include data from IoT devices, enhanced traceability of technologies with sensors etc. Blockchain can make security, privacy, and data transparency better for both small and large businesses. However, the 4th and 5th generation technology can help achieve this goal faster.



II. 4th GENERATION BLOCKCHAIN

The fourth generation of blockchain is known as blockchain 4.0. It aims to make blockchain a business-ready platform for developing and deploying applications, bringing blockchain to the next level of mainstream adoption. In the past blockchain technology had lot of benefits for business like security , automated record-keeping and immutability and do many more inside a totally secure framework.

Unfortunately , blockchain had not overcome several major challenges, like not being fast enough and not having enough people with right skills to develop on it, etc. This is what blockchain 4.0 is all about. If you can make apps look and feel just as good as a web 2.0 app, run just as quickly, and still keep the benefits of blockchain technology, you've got blockchain4.0. If you have a good idea but don't have a lot of experience with blockchain, you can create, set up and run business Decentralized Applications (Dapps) on 4.0 blockchains without having a lot of experience as a blockchain developer. This includes the ability to create applications that include permissions hierarchies allowing users to determine who has access to what; the ability to make and accept payments within the application, with complete security and immutability, with automatic recording; the ability to establish autonomous contracts for everything from in-house stage deliverables to contractor payments, all within an application that looks and performs as well and runs as quickly as anything you are accustomed to finding on the web.

We can divide Blockchain 4.0 applications into two verticals :

1. **Web 3.0:** Web 3.0 focuses on decentralization, which is why Blockchain plays an important role in the development of the 3rd generation of Internet services. The Internet

is ever-changing, and we're on the brink of 3rd generation internet services, powered by IoT, Blockchain and AI.

The goal of Web 3.0 is to establish an autonomous, decentralized, open, and smart internet, which will be supported by decentralized protocols, which can be facilitated by Blockchain.

Some of the Web 3.0 traits are:

- Semantic web is a type of online technology that allows people to create, post, and share content by searching and analyzing data. Instead of relying on numbers or keywords, it focuses on understanding words.
- It's a combination of machine learning and AI. The end result is Web 3.0 that's smarter and more responsive to user needs. When these ideas are combined with NLP(Natural language processing), you get a computer that does NLP.
- It provides users with the option to engage in peer-to-peer or face-to-face communication without the risk of being exposed to third-party risks through the provision of "unreliable" information.
- It shows how IoT devices and applications connect to each other. Semantic metadata makes it possible to use all available data efficiently. Anyone can connect to the internet from anywhere, anytime, without a computer or any smart device.
- This is where 3-D graphics come into play. In fact, we've already seen this in the e-commerce world, in virtual tours, and in computer games.

It uses AI technology, Machine Learning, and Blockchain to provide users with smart applications. This will enable the intelligent creation and distribution of highly tailored content to every internet user.

2. **Metaverse:** Metaverses is the next big thing we'll be experiencing in the next few years. It's the result of the dreams of tech giants such as Facebook, Microsoft, and Nvidia. We're all connected to virtual worlds at different points in our lives, like social interaction, gaming, work, networking, and more. Metaverse is going to make these experiences more realistic and realistic.

Advanced Artificial Intelligence (AI), Internet of Things (IoT), Augmented Reality (AR), Virtual Reality (VR), Cloud Computing and Blockchain will all contribute to the creation of Metaverse virtual-reality environments, where users can interact with a simulated environment and interact with other users through real-world experiences. With blockchain 4.0's advanced solutions, Metaverse users can better manage their safety and trust requirements. For example, if you're playing a game on the Metaverse, you can buy, own, and trade stuff that could be worth a ton of money. To make sure these items don't get stolen, you need proof of ownership, which is something that's as hard to come by and hard to come by, like NFTs.

The implementation of blockchain 4.0 technologies can be utilized to facilitate the Metaverse development process by meeting the following requirements:

- Decentralization
- Decentralized data management

- Security
- Digital Proof of ownership
- Digital collectability of assets (such as NFTs)
- Governance
- Transfer of value through crypto
- Interoperability

III. 5th GENERATION BLOCKCHAIN

Blockchain 5.0 is the newest version of the blockchain, and one of the first to use it is Relictum Pro. According to the company's white paper, it has a block size of 8,000 times less than bitcoin and can handle up to 1 million transactions a second. A Relictum Pro smart contract can be signed with up to 10 different partners, which is something that no other blockchain network offers yet. Some of the other 5.0 blockchains include Everscale,and Propersix.

1. **Everscale:** The Everscale, as developed by the developers, is a network of high-performance computing nodes to provide a variety of services. Additionally, the virtual machines developed by the messaging platform Telegram are integrated into the platform to enable a broad range of practical applications for millions of users around the world. The use of fifth generation chains does not only enable linear sharding but also dynamically sharding as the load increases. This dynamic architecture allows Everscale to scale securely while maintaining a high degree of decentralization – up to millions of operations per second.

   As one of the most cutting-edge blockchain networks, Everscale integrates all the blockchain innovations and ideas of recent years. Everscale's flexibility allows it to act as a decentralized hub for many blockchains and resource intensive applications like GameFi and DeFi, as well as supply chains. No other blockchain has the ability to dynamically multithread and shard, which means there is always room to add nodes and shards that can handle any load.

   Everscale's comprehensive suite of developer tools includes Solidity compilers, C++ compilers, the Everscale Development Kit (SDK), the Everscale Application Programming Interface (API), client libraries that have been ported to over 20 languages and operating systems, and a variety of decentralised browsers and wallets.

   Some of the features include:

   - The first tightly-coupled blockchain to support the forwarding messages between shards almost instantly within the Everscale ecosystem.
   - Arbitrary data sharing across the blockchain is made possible with improved scalability.
   - The first blockchain to support Dynamic Mapping i.e. Automatic data refresh.
   - Truly scalable general-purpose blockchain to allow the integrations of blockchain-based real worlds applications like micropayment channels and off-chain payment supports, multi-currency transfer, blockchain voting, gaming, government registries, energy-related services, property right registrations, and supply chain management.

2. **Relictum Pro:** Relictum Pro aims to get rid of middlemen in different areas like transportation, lodging, banking, etc., and make transactions go faster and safer than ever before.

3. **Major Problems that Relictum Pro Solves:**
   - Encapsulating the information of all individuals under a single, unified, and easy-to-use platform. It has the capability to become a single, unified platform where all financial, personal, and medical information can be stored and protected.
   - Adding virtual connections to traditional blockchain networks to speed up the process and make it safer.
   - Easily integrate blockchain technology into existing products and systems, so businesses don't have to spend a ton of time and money making the switch.

   Here are just a few of the factors that will propel Relictum Pro to take the world by storm with the advent of blockchain 5.0 :

   - **Drastically Smaller Block Size:** The block size of blockchain 5.0 is 120 bytes, 8,000 times less than the block size of Bitcoin (1 MB). Because of this, the speed of data transmission and data processing in blockchain 5.0 can be increased to unprecedented levels. It also increases the speed of information search on the network.

   - **Faster, Much Faster Transactions:** It usually takes around 30 minutes for all the nodes to fill up with blocks, but with Blockchain 5.0, it only takes 2 seconds to complete a transaction, so you can transfer money in no time.

   - **Improved Rate of Transactions:** On 4th generation blockchains, the average transaction rate is between 1,000 and 900,000 transactions per second (TPS). However, with the advent of 5.0 blockchains, it is now possible to achieve a throughput of 1000,000+ transactions per second.

IV. CONCLUSION

At the end of the day, Blockchain 5.0 makes blockchain smart and works with AI, other data analytics, and other Industry 4.0 technologies to make smart and automated operations happen with the help of Blockchain 5.0.

