OmniIndex

The Web 3.0 Data Platform

James Stanbridge. March 2023.

INTRO: WHAT IS WEB 3.0?

Web 3.0 is the next evolution of the World Wide Web. The term incorporates a number of different concepts including: decentralization, blockchain, and token-based economics. The key traits of Web 3.0 are a focus on transformed user experiences, decentralization, and openness.

Web 3.0 has been developed on innovative technologies focussed on ensuring security, privacy and transparency including blockchain, artificial intelligence, semantic web, and machine learning.

Most observers would agree that the main aspects of Web 3.0 are:

SEMANTIC WEB

A web that understands humans and works on improving online technologies with additional functionalities.

ARTIFICIAL INTELLIGENCE

A web that is capable of learning and adapting to user preferences.

3D GRAPHICS

Spatial computing and 3D graphics.

CONNECTIVITY AND UBIQUITY

A web that is always connected and accessible.

BLOCKCHAIN & DECENTRALIZATION

A web that is decentralized and secure.

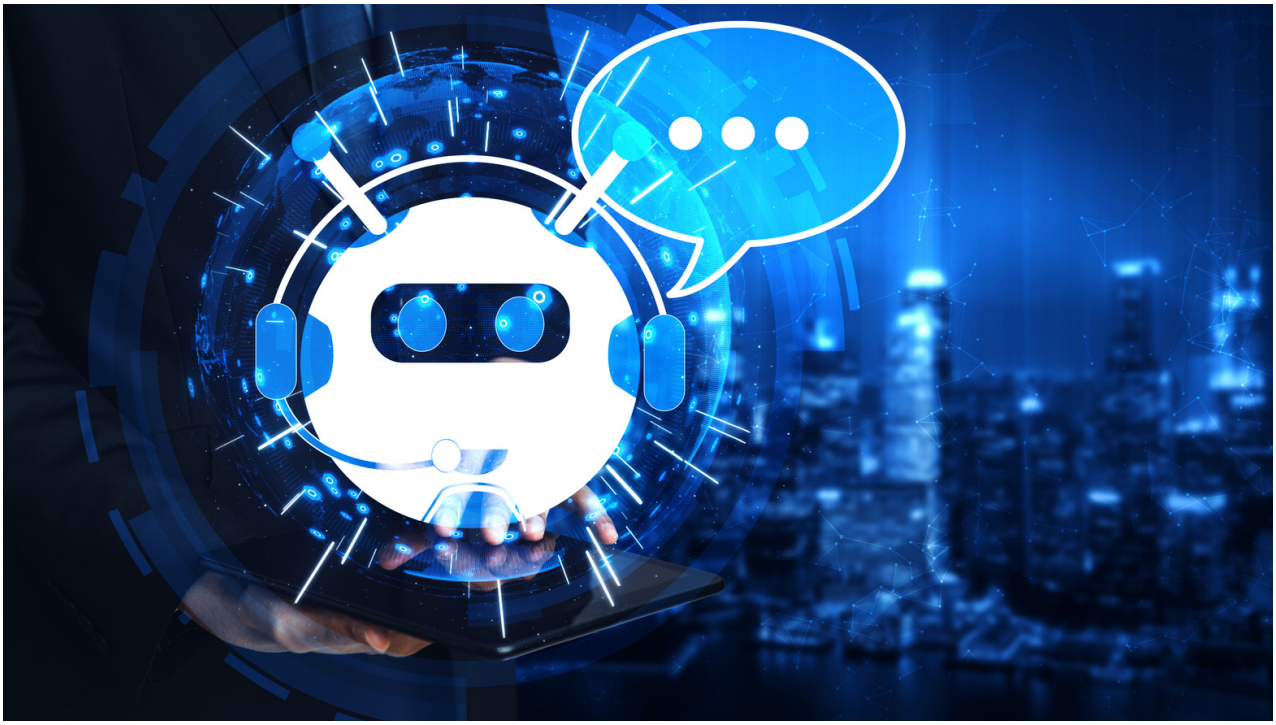
This White Paper introduces and explores these concepts and technologies, showing why OmniIndex and our Data Platform is the go-to choice for customers who want to upgrade their data storage, security, and productivity with Web 3.0 today.

SEMANTIC WEB

The OmniIndex Data Platform is a Semantic Web technology utilizing natural language processing and machine learning to understand the context and meaning behind data. This enables users to gain more accurate and relevant search results, as well as to gain valuable insights including about the relationships between different pieces of data.

An example of one of the most prominent utilizations of this, is OmniIndex's chatbot. It enables users to quickly and easily interact with the Platform using natural language and visual interfaces via both voice, and text. The chatbot makes it easier for users to access and work with their data as it effectively bypasses the need for additional actions or third-party screens to gain instant useful insights.

OmniIndex's chatbot can be seen as a key component of The Platform's web 3.0 capabilities. This is because by enabling users to interact with The Platform using natural language and visual interfaces, the bot interface makes it easier for users to access and work with their data, while also leveraging the platform's AI and 3D graphics capabilities to provide a more intuitive and personalized user experience.



ARTIFICIAL INTELLIGENCE

The OmniIndex Platform utilizes Artificial Intelligence (AI) in a number of ways to optimize the user experience and service as well as to continually improve its capabilities and adapt to user preferences. One example is the previously mentioned AI chatbot which uses Natural Language Understanding (NLU) and a probability matrix to return only the most accurate and relevant answers.

A second example is that The OmniIndex Platform also uses AI to automatically add additional context to data for enhanced insights and productivity. For example, the fully homomorphically encrypted (FHE) datasets are automatically analyzed with useful meta content derived and cataloged - including 'context' and 'sentiment'. These two details are placed into the blockchain automatically with users able to use this additionally gained knowledge for both data management, and data insights. For instance, the automatically identified and labeled 'sentiment' information allows a user to calculate Net Promoter scores from their existing unstructured data.

In both of these examples, the chatbot and the AI generated meta content, The OmniIndex Platform uses ontologies to ensure the AI is tailored and optimized for the specific customer. The use of specific and expert ontologies is crucial because each OmniIndex customer has a different requirement when it comes to using their data. For example a Health Organization would use health ontologies, dictionaries, lexicons and thesauruses while a financial institution would use financial ones. (These are in addition to the language needs of each customer.)

OmniIndex's AI enables users to get the most from their data in a fully secure and fully adaptable setting with the Platform optimizing the experience for the specific user's needs through learning and adaptation.

3D GRAPHICS AND SPATIAL COMPUTING

The OmniIndex Platform incorporates 3D graphics and spatial computing capabilities as part of the workflow to allow users to visualize and interact with data in a more immersive and intuitive way.

This can be done either via our Connectors to existing tools, or through customers using our patented and innovative Web 3.0 and FHE technology to power their own new and existing apps and services.

For example, a Life Science customer are using The OmniIndex Platform to develop a health and lifestyle app featuring detailed and engaging data visualisations of fully encrypted customer health and personal information securely stored in OmniIndex's Blockchains.

CONNECTIVITY AND UBIQUITY

The OmniIndex Platform's architecture ensures it is always connected and accessible. This is important as it makes it easy for users to access and work with their data from anywhere at any time.

A key part of this is the Platform's blockchain file system. With this system, data is stored in an immutable and decentralized way. In other words, data stored in The OmniIndex Platform cannot be changed or deleted and multiple copies of the data are distributed across the cloud network.

This means that even if one copy succumbed to an attack and was lost, the user would still be able to access their data immediately because of the other remaining copies.

Crucially, because of how the blockchain architecture is combined with our patented fully homomorphic encryption (FHE), it is impossible for anybody to access the data other than the data owner as only they have the encryption key. This means Ransomware attacks are effectively eliminated with no risk of data being inaccessible or delayed due to such attacks.

Smart contracts offer a further security and privacy control to ensure data is always accessible for those who have the required permissions. This is because they can be used to enforce access control policies for data stored on the blockchain file system. This adds an additional layer of difficulty for ransomware attackers and anyone else to have to overcome in order to gain unauthorized access to sensitive data (as they would need to bypass the smart contract-based access control mechanisms).

Finally, because users access their data and file systems via a simple API call, web, desktop and mobile devices are all first class consumers of the OmniIndex services. Meaning The OmniIndex Platform offers a truly connected and accessible data option for customers - while keeping privacy and security at the fore.

BLOCKCHAIN AND DECENTRALIZATION

As mentioned, The OmniIndex Data Platform leverages blockchain and decentralization technologies to ensure user data is not just always accessible, but always secure and private.

A significant aspect of this is that OmniIndex's combination of Blockchain and FHE ensures there is no third-party access to user's data with neither OmniIndex nor any connected productivity or collaboration tools able to access or see it. This means users can use their data in cloud productivity and collaboration tools including Google Workspace with no risk of exposure with their data stored in The OmniIndex Platform and their Blockchain while remaining encrypted end-to-end.

In other words, user data is taken out of a centralized system and instead stored externally in a decentralized blockchain that the customer has 100% control over with their own access, their own encryption, and no back-door.

This end-to-end encryption is possible because Blockchain file systems use cryptographic algorithms to secure data. This includes encrypting data before it is stored on the blockchain, and using digital signatures to ensure that only authorized users can access and modify the data.

What makes us unique, is that OmniIndex's patented fully homomorphic encryption features allow for comprehensive and detailed analytics to be available without ever compromising the encryption of the data or file systems.

This is because our FHE allows search and computations to be performed on the data without decryption and without any reduction in the security of the data.

OmniIndex

Encrypt It. Store It. Use It.

The OmniIndex Platform ugrades your workflow and data security to Web 3.0 standards. This is achieved through our patented combination of FHE, Blockchain, AI, and the other innovative technologies outlined in this paper.

To learn more or to contact us, visit our website.

www.omniindex.io