**The Great Web**

Let’s begin this text the wrong way. Let's begin with what this story won’t tell you. My story won’t tell you how to become rich. It will not tell you how to be successful. What it will tell you, is how with the help of rising (and long-existing) technology, we can become free. Live in a fairly simple world. Feel needed. As, if it is not the values that we are trying to change with the help of technology, then what…

Web 3 or the Great Web is a communication framework if you may. An interconnection of old and new protocols, technologies and algorithms that take us a bit back in time. Why back? Because just like Bitcoin is, web 3 is a reversive stack. It is taking us back to the roots with the help of technology. What was not for so long inaccessible to many is now becoming available.

One of my favourite questions is: where do we place web 3 on the technological layer stack? Is it an application? Is it a networking protocol? Well, it's a bit of everything. But let's start at the beginning: Bitcoin. Bitcoin has helped people to understand the current financial system. It helped people to understand that we should be in charge of our finances and not trust anyone else with them.

Is Bitcoin part of web 3? Well, I believe it is. Blockchain as a whole is part of web 3. Something that allows species to communicate app-2-app. Peer-2-Peer. Network-2-Network. But isn't blockchain an application layer? Well, it most certainly is and most certainly is NOT. Blockchain is simultaneously an application, but it can also be a communication protocol, it can be an encryption layer, the whole lot. But that's not the point of the discussion.

Let's conclude the introduction and jump right into understanding who are its biggest players on the table at the moment. And trying to grasp how web3 functions on a higher level. As I stated above, web 3 functions by helping a thinking agent transact directly, without the need for an intermediary. It abolishes the chains of the big 3: HTTP, DNS and URL, by allowing us to communicate directly. Why is communication important? Communication is our utter and most important protocol. It is how we function, think, born, die, exchange money, signals, etc. Communication is everything. We are social beings. So are the other beings on our planet and probably beyond it too.

**The big guns**

Several web 3 players can help us to understand how this phenomenen works now, and how it (probably) will work in the future. Let's examine them and try to build a technological stack that will help us to understand how we can create global networks, from hardware to a personal blog on your personal operational system.

I will try to organise the projects in “blocks”, by category, and describe what they do in the shortest manner possible in relation to web 3 and how it helps us to build a new communication protocol.

Firstly, comes *Bitcoin*, this is the new global monetary system. Money that doesn't require a third party. Money that is always routed, no matter the purpose. Borderless money that functions 24/7 without an ID, a bank or any other bingo bullshit. Bitcoin lays out the ground for the new communication stack that we can build on. We communicate via money. We talk money. It is our language. Our base protocol if you may.

*Polkadot and Cosmos* – maybe they should be last on my list, but they aren't. What they allow is to create a truly interoperable communication system. One where we can transfer value between networks without concern. One where you own your network if you wish. Or share the network with others. But still, you can communicate with everyone in a secure and a very efficient manner.

Polkadot and Cosmos are important because they make the so much needed connection between stand-alone blockchains, applications and protocols. Hence, truly creating a much-needed service. If Bitcoin was money then those two can be thought of as routers that help to route information.

One particular piece of the puzzle that needs to be mentioned is IBC by Cosmos. IBC is the internet blockchain protocol that will glue all of the Tendermint chains together. It will allow for one very simple, yet powerful thing - data transfer between chains (it should be mentioned, that as of the date when this article was written, IBC is already tested and is ready for a final public test in 1 - 2 months). Data transfer may sound like token transfer. And it is, as tokens are technically data in the case of blockchains. But if you open your mind and think of the endless possibilities this might create, you might be surprised. If a blockchain has any utility (we aren't interested in the once that don't), then we can trade it for any other p[ieve of data at any price/set of rules. I.E. my blockchain produces ranking for content and your blockchain produces reputation for writers. We are now able to set rules to trade those between the two mentioned blockchains. But as the scope of projects is pretty much endless. This creates a unique opportunity for endless markets.

There are quite a few awesome and efficient, state of the art computers out there that I can mention when talking about web3. Those are Ethereum 2.0, Aeternity, Cardano, Holochain, etc. They are stand-alone engines, that all work in the same direction. They are creating ecosystems for open-source developers to participate in by giving them the right tools to work with. They are creating the so much needed infrastructure for decentralized applications that can communicate directly with each other with the help of computational rules and code. Each has a slightly different angle on the technological take of things. But the reality is that they all general-purpose chains and all do the same trick - they give us tools.

*IOTA* and *FOAM*. 2 astonishing projects with world important missions. Both can be placed in the realm of the internet of things. IOTA trying to make a connection between all the devices in the world in a decentralized manner. And FOAM trying to stop the centralization of mapping, which in turn brings us the freedom to things like logistics, geo-tagging, etc.

*Aragon*, a project that is set out to create a free jurisdiction (or rather make sure that the only jurisdiction is code) for organizations. We must understand that we need some kind of governance systems in place. Local governance will trend. Local communities have shown to prosper and to function better throughout history (Liechtenstein, Luxembourg, Monaco, etc remain some of the richest and happiest countries in the world today). Aragon helps to shape court systems, organizations and much more and let communities shape the governing.

*Decentraland*. A realm of its own. Not without minuses and obstacles, but a project with many ambitions, nonetheless. Think of a completely digital and virtual reality. One that is safe from the bureaucratic and tiring dullness of the modern world. This is virtual reality. A

place where people can find a haven from the hassle of the world. Start new businesses, set up new rules, create cities and districts where only the imagination is your horizon.

*IPFS* and *Filecoin*. Might be the most important mentions on this list. IPFS is a protocol that is designed to make the web faster, safer, and more open. IPFS makes it possible to spread across high volumes of data and keeps every version of your files. IPFS makes it simple to set up networks for mirroring data. This means that data is pretty much immutable or if you may – everlasting. IPFS helps to further distribute the web amongst peers (users). It enables constant availability — with or without internet connectivity. You can share and view files, manage large chunks of data, build applications, etc.

Filecoin, on the other hand, is a project that set out to bring adoption of IPFS to the masses. It is the market for data. The unused resources laying around most household in today's world. With the help of economic mechanisms and with the help of IPFS, Filecoin might be set out to become the first project that will be used in years to come by those who have never heard the word blockchain.

*Cyber*. Cyber is creating a brand new protocol for adding and searching information onto a knowledge graph (a compilation of facts about something that provides meaning to the user). And rank this information. Different types of users create links between 2 IPFS hashes and place them on a knowledge graph by spending bandwidth (amount of data that can be transmitted over a fixed period of time). That content is then dynamically ranked with the help of digital tokens and the current parameters of the network load. This makes the rank dynamic (characterized by continuous change, activity, or progress).

All this is computed by a program or a computer that are responsible for checking the validity of something. The validators do so with the help of their computational resources. This allows to search data on the web, rank it, query it and create knowledge databases without blackbox intermediaries (third parties that try to censor data, hide or push specific results to obtain money, track your data, etc).

Cyber uses DURA (distributed unified resource address) which are the equivalent of a URL (an abbreviation for uniform resource locator), which is what you see in your browser when you visit a web2 website. The whole idea behind DURA is very simple. Browse content without relying on any registry service (ICANN). This means no relying on third parties for packet routing. No censorship, etc. Apart from the philosophical stand, DURA's can deliver security, globality and permanent linking. Hyperlinks shape the internet. They have built it. We base our knowledge, our political, economic and educational decisions on the internet. We learn from Google. Google is our father, teacher, source of knowledge, social life, etc. But, how can we trust the internet if it was shaped by something that itself is untrusted? Well, we can't. Cyberlinks, on the other hand, are trusted and backed by a provable and an auditable mechanism that anyone can check. This means that with the aid of cyberlinks we can, no less, but create a trusted model of all the information in the universe!

Pages (content) are added to the index when someone submits a CID or creates a cyberlink. This is a transaction (they require bandwidth, that serves as a spam protection mechanism). Transactions are checked by validators (the computers that make sure you have the balance to submit a transaction) and added to the knowledge graph, which is then accessed by someone who queries the database. Pages are not excluded from the index in any way. Every transaction should and must be routed (passed to its destination whatever it may be).

Cyb is your friendly robot / personal browser application. On one hand, it is a mere browser. But it isn't. The problem is that there is no such word as of now that describes what cyb is exactly. It is a browser in the sense that it lets you search for things. But, it is your personal applications, that can understand many other things. It can act as a wallet. It can act as a database. It contains your cyber-space robots. It works via the use of DURA's rather than the usual DNS / HTTP /URL and with the help of full nodes routing information between themselves and users.

The interesting thing is that such a simple mechanism allows creating a lot of powerful tools as a result. For example: unified semantics, SEO instruments, autonomous robots, access to your own database of knowledge and a lot more. Along with IPFS, cyber shapes the most important market of the future. The exchange of information. The gold, oil and the diamonds of tomorrow. The idea is that Search is a global mechanism that is globally understood by everyone, regardless of language, race, age, etc. It is somewhat a basic instinct (searching for food to survive, etc). In the digital realm with the help of search, we gain answers to our questions, which we always ask. Search helps us to build a model around any subject that is of interest to us. With the use of search, we can build databases, which can lead to a great number of useful instruments.

*Urbit*. One of the craziest projects out in the wild. Urbit is sort of the last frontier for web 3 and decentralization. Along with projects like cyber, IPFS and others, it is capable of changing the game completely. Urbit is a personal, secure server with your OS and an identity. Think about it. The world is controlled by companies like Amazon, who control the biggest chunks of information in the world (hosting CIA servers and other governmental servers too). Can all those projects become decentralised if the computation that stands behind them is owned by the same megacorps? No. Urbit is set out to change this. More so, it is a completely brand-new technological web stack, changing the appearance of computer science with the help of its language Hoon and its minimalistic approach to systems.

Does all of this sound like too much to take it? It is. Unarguably - it is. But we already process more information in a day then people did in their lifetime 100 years ago! To keep up with the development of technology we must wish to learn. That aside, you might ask how does this relate to understanding web3. Well, let's take another step back.

**History is vital**

If we spread out the known history on a yearly calendar (that's 13.2 billion years of possible light that we can see), then all of our known history will fit in the last 7 seconds. That's including civilizations, wars, etc. Modern history… blink of an eye. Point is simple. If we want change, then we must learn, we must spend time to understand that the long talked about ideas of direct communication, private money, free-thinking, etc. Have been here for as long as we know. Today we finally have the amazing opportunity to use technology to implement those ideas.

I cannot leave out an argument I hear many make (alas, due to lack of the required knowledge). The argument is thus:
"Ok, I understand that web 3 is a combination of all the service that we ever wanted – private money, free speech, amazing tech and whatever else… But… what will we do when they cut out the internet, ha?".

Usually, at this point, the person arguing seems so happy to have defeated all the ideas that stand behind web 3. Only to acknowledge that the argument itself doesn't make any sense. For one, there have been numerous times in our history where we required to wait for a technological breakthrough to change things (for example the telescope). The more obvious argument is science. The fact that someone cuts cables will not stop us from communicating.

Let's try and understand how those things work without going too deep. Exchange of electromagnetic impulses is simply an exchange of zeros and once over something capable of transferring them (by the way, the ground is capable of doing this too, just not very conveniently). One must not forget that code and electrons are not controlled by anyone. They exist as part of the universe. The invention of the telegraph was a breakthrough in the field. But the possibility of creating dumb networks can not be taken away from someone unless knowledge is taken away. More so, today's technology allows for exchanging signals in other ways. For example, over radio frequencies, wifi and so on.

All this shows us that the possibility of creating local mesh networks that are connected with other networks is NOT controlled by any entity or government. It is merely a question of knowledge and basic science. It is a question of one step that separates us from creating our own physical networks. They already exist and are already used. It's just a question of how widely. But there was a time where most people stuck to the Bible (without the actual ability to read it) rather than understand how light from the stars reaches the earth and that the earth has provable and explainable scientific qualities.

If we were to take this information and drive it forward to modern tech, we can create any unique networks with the use of wi-fi, triangulation or any other mesh-networks, ethernet (or any other way of sharing bandwidth) and, obviously, a set of nodes that need to speak to each other. I.E. computers are machines that can count (8 bit, 16 bit, etc). If one machine is connected to another via a cable or an antenna it can pass on zeros and once to another machine. Those are representations of colours, numbers, strings, words, etc. We would have to encrypt and decrypt data. Make sure it was received by a correct machine, etc. Sounds familiar? Of course, this is how the routing of data works. The point is simple. A recreation of this doesn't require that much of an effort as we thought of previously. More so. It now seems that decentralized peer to peer networks are not less capable, but maybe even more capable of this work!

**Bigger than tech**

I can describe web 3 in the following way:
Web3 is the next evolutionary step in the development of the web. A step that takes away from centralisation of search and social services and away from things that are dependent on a single functioning unit (have a central source of authority). It is a step that desires to see involved counterparties and applications communicate directly one with another. In agreement with each other, whilst also, be motivated for this behaviour. And as a result, achieve a safer routing of data and packets (information exchange) on the web.

But this is merely a technological description. The text is set out to let you think and decide for yourself, whether or not, technology can help us to take things beyond the realm of technicality. All those are just instruments to make us understand the much larger and more important things in life. Innovation and responsibility. That a world free of censorship, enforcement and corruption already exists. we just need to reach for it.

The last question that remains unanswered, is “when will all of this in action”. Well, let me disappoint you twice in one paragraph. For one, it already functions. It's just the infrastructural stage. The problem (which is a feature and not a bug) is that the world lives in an epoch of information, and people are seeing that information everywhere. And this is a good thing. But, when you see something, you want to feel it and try it out straight away. Unfortunately, that is not the case right now for the not so technical users. (And two) We need to wait a couple of years more before those things get deployed to the applicational level. Further, that will probably not lead to mass adoption. Maybe in 5 - 15 years from now, we will see some major uses of intercommunicating web3 technology used by the masses.