Swarm positions as the platform of the future for a modern, sovereign society. Swarm suggests a new type of digital society, where such concepts as confidentiality and security of personal data are the key values. These ideas are provided by high technologies used in Swarm.

Swarm’s vision is to spread the blockchain with p2p storage and communication to realize the super computer that can serve as an operating system and placement ecosystem for decentralized services and applications.

Swarm in progress could be an operational system that copies the Internet. So, Swarm is a decentralized web in which users control their own personal data, avoiding companies or corporations that can collect and use user data. In globally the goal of Swarm is to make the Internet decentralized again, to make web without Internet corporations that could have an impact on privacy and user experience.

Swarm provides service and resistance against network faults or targeted attacks. With its exceptional privacy features like anonymous browsing, protected storage, untraceable messaging and file representation formats that leak no metadata, Swarm responds to the growing demand for security on the Internet.

Economically the Swarm system is self-supporting, it is enforced by smart contracts based on the Ethereum blockchain. Built-in features seek to optimize the allocation of bandwidth and storage resources and render Swarm economically self-sustaining. Now Swarm team is giving the jobs for: developers, scientists, system administrators, operation managers, graphic designers and e.t.c. It is possible to think not only about self-sufficiency, but also about significant profits. Since the company provides many jobs for highly qualified specialists who require high salaries.

Cryptocurrency Swarm cannot be considered separately from the concepts of the DISC. The DISC definition is: Distributed Immutable Store of Chunks. It is the underlying storage model of Swarm. It consists of nodes that cooperate in storing and serving data. DISC structured to make the maximum profit to an operator that owns node. Anyone with free storage and bandwidth can participate in the DISK system as an operator. Participation in the system implies a reward. To become an operator, a person have to download and install client, this will be discussed in detail later in the article.

The DISC by itself provides network infrastructure. The network consists of nodes, all nodes are connected with each other. The exchanging of nodes happens via secure communication channels between nodes. It serviced by peer-to-peer protocols.

The typical unit of storage in Swarm system is called a chunk. A chunk usually consists of 4 kb of data and has an own address. A chunk addresses and nodes addresses takes the addresses from the same pool. It makes a possibility to know the distance from chunk to chunk, or chunk to node. The storage scheme ensures that chunks are stored close to each other on nodes that are close to each other. The scheme provides the high speed and security data transport.

To facilitate the confidentiality of data, chunks can be padded to 4 kilobytes and then encrypted, making them indistinguishable from random data for anyone without the decryption key. Even for unencrypted chunks, there is no easy way for node operators to figure out which content a chunk forms part of.

Forwarding and confidentiality are provided on the network also thanks to the technology of forwarding information from nearby nodes. The routing algorithm enables important properties, such as: request sender anonymity and automatic scaling when demand increases.

A message by a node initiating the request is in every way identical to a message from a node simply forwarding a request. It enables the sender of the request to save their privacy. It is facilitating publishing without permission and private browsing.

Swarm is suitable for high-level concepts, such as files with various metadata, applications. Below, for an example, will be considered the Bee application and the mail service PSS. The Swarms API mirrors already used web APIs.

Technically Swarm is a peer-to-peer network system, typical to cryptocurrency. When some operator runs the Swarm client software, a new node is created and becomes part of the network, and takes one sector of Swarm’s global hard-drive. Swarm provides a scalable infrastructure, that supported by custom built client Bee. Once the Bee client is launched, it will start connecting to nodes around the world. It makes Bee client to become part of a p2p network.

Postal Service on Swarm (PSS) is a protocol for messaging in Swarm. Like the rest of the Swarm network it sends messages node by node. This technology realized by encrypting a message for the recipient, and wrapping it with a topic of an addressed chunk. This high-level system supports by the low push sync protocol.

Generally Swarm is an autonomous technology that provides data storage and distribution. The network is secured by technologies on different network levels, from low-level to high API levels. The Swarm now is a big team of different specialist who makes a decentralized network with high economic potential. It looks like the next step of the Web evolution. With anonymity and decentralized functions swarm moves the future towards to an independent society and global open markets.

I am very pleased to be a participant in this event, where everyone is focused on expanding the project.