Introduction

This white paper provides an introduction to **Octopus,** a decentralized application (**Octopus Dapp**) designed to host websites using Blockchain technology. This white paper will help you understand the general and technical approach we will take to achieve this project as we describe the present problems facing centralized web hosting and how **Octopus Dapp** will solve those problems.

1.0 The Problem

1.1 Data

The internet is evolving at a lightning speed as new technology and applications are rolled out to make the society and corporate sectors inter-connected seamlessly. With over 3.7 billion people online as at 2016 and the number of servers and networks surpassing the human population there is a high demand for hosting data, web pages, applications and relative apps on the internet.

Every day, 2.5 quintillion bytes of data are created by 3.7 billion users accessing information on the internet from different part of the world using different protocols (with HTTP being the most popular). This data usage keeps growing exponentially as more people are expected to have access to the internet by 2020.

Therefore there is need to address the issue of hosting data which has emanated from the increased number of data created daily. Big data companies such as Amazon, Google, and Microsoft provide huge clusters of systems to host websites and other applications. Other big web hosting players like GoDaddy, Namecheap, Inmotion, Hostgator and a host of other also provide web hosting service to address the high demand for data generated.

1.2 Central Control (Centralized web hosting)

The web hosting industry is dominated by server operators that provide web hosting services via a centralized system. Big data providers like Amazon, Microsoft to mention a few operates as a centralized body on the internet. Often, they are forced to shut down websites that are deemed a threat, malicious or requested by government agencies.

Also, there are instances where these big players experience service outage. This kind of outages affects hundreds of websites. In other words, there are several points of failure such as DNS (Domain Name Services) outage, server breach to mention a few.

1.3 Freedom & Security

In addition to the problem of centralization, there is no greater threat on the internet than the web itself. With hundreds of hacks being carried out daily on websites and web hosting providers by hackers seeking to forcefully steal information such as credit card details, usernames, and passwords to mention a few, the internet itself is a greater threat to the freedom and privacy of its users.

1.4 Cost

The cost of hosting a website and keeping it online can be enormous. This cost varies from web hosting providers. On centralized web hosting, users pay for features such as web space, bandwidth, database and other services the provider sees fit some of which they do not exhaust but they eventually get charged upfront.

2.0 Proposed Solution

To solve the problem of centralized web hosting, censorship by government agencies and provide data security and scalability, there must be a system that provides decentralized web hosting, data privacy, and scalability and mitigates censorship.

We propose to build **Octopus Dapp**, a decentralized application that combines IPFS protocol, Artificial Intelligence and Blockchain technology to provide decentralized web hosting. **Octopus Dapp** operations on the web will decentralize web hosting and domain registration system using Blockchain technology at the core of its operation. We believe this problem can be mitigated using new technology like InterPlantery File System (IPSF), Artificial Intelligence and Blockchain technology.

IPFS is a peer-to-peer distributed file system that seeks to connect all computing devices (nodes) with the same system of files. IPFS combines a distributed hash table (DHT), an incentivized block exchange, and a self-certifying namespace (InterPlantery Name Space -IPNS).

Using distributed hash tables (DHT) data is spread across a network of computers, and efficiently coordinated to enable efficient access and lookup between nodes.

In simple terms, by combining Blockchain technology with IPFS we are building an application that uses content address hyperlink to deliver website contents compared to the location addressing hyperlinks used by centralized web hosting providers to deliver website contents.

Combining these technologies mitigate point of failures, censorship, ensure permanent website contents with distributed version control system (VCS) and create a storage marketplace which our network users earn rewards via Proof-of-Stake (PoS) – more like Proof-of-Storage.

2.0 How it Works

2.1 Octopus Dapp UI/UX

Octopus Dapp is built intelligently along with a **User Interface (UI)** with **User Experience** on top of our priority. This enables users submit their website contents. This UI comes with powerful features such as;

File manager: This is a important UX which enables user upload their website data bundles up in a zip file which is automatically extracted in the directory where's uploaded. This feature allows drag-and-drop, move, copy, delete and compress. Data uploaded are stored on our server(s) before its broadcasted across the blockchain.

File editor: A unique code editor that supports multiple languages.

Website builder: User friendly drag-and-drop site builders which enable user build their website online using carefully coded widgets. Widgets are coded to perform certain function such as header function, footer function, gallery and others. This enables users with no foundational knowledge on website design build their website seamlessly online via our intelligent UI/UX interface. These widgets can be easily hashed into blocks and organized using DHT in IPFS.

DNS manager: This is responsible for mapping domain names to hashes on **Octopus Dapp.** It does this by maintaining constant connection with nodes peered to IPFS. In addition, it propagates users' updates made on website files to nodes connected to IPFS. Nodes not connected to the clusters are removed from the mapping structure of the user's DNS.

Website traffic interface: This enables user keep track of website visitors. This interface is designed to keep track of visitors and store the information permanently on the blockchain. Users have the option to make this interface public so non-account user can see the traffic of the domain in question.

Personal account: This enables user to manage user profile, change their password, add more website, add more storage, reduce storage, buy domain names, and send or receive Mollusk on their wallet.

2.2 Data Upload

Submitting website data to **Octopus Dapp** requires certain steps. Users are required to go through a registration process which includes providing a email address to sign up. Users are mandated to confirm this email using a link, after which they register by filling in their website name, domain name (if registered, if not we provide with option to register the domain name), amount of space they require, their username, password and Google 2FA code.

Fulfilling these steps take the user to the final (optional) stage, which is funding their wallet with the equivalent amount of token required to host their website.

After funding their wallet, users are able to submit their contents, edit it then broadcast it over **Octopus** blockchain. **Octopus Dapp** receives the files broadcasted or changes made and verify it, encrypt, and organize it using Merkle Tree and a Directed Acyclic Graph (DAG) system. This verification is done by organizing data blocks using cryptographic hash functions. Contents uploaded are then assigned to this user with a unique hash for each data file and then broadcasted to available nodes that will deliver the content for a requested user's domain.

2.3 Providing a Node

Providing a node to **Octopus Dapp** requires few steps. One of which is going through a registration process. This registration is done on via our **Octopus Dapp software** (Windows OS, Mac OS or Linux OS) or via **Octopus Dapp** mobile app (Android or iOS). The registration is done using the device which the user would like to commit storage. By doing this, the device is hashed and given a unique ID with cryptographic public keys and private keys.

The second stage requires the user fund his wallet within **Octopus Dapp** software or mobile app with a minimum of five (5) Mollusks. This step is required to activate our sidechain which works with **Octopus Dapp** (Mainchain).The sidechain is a co-existing blockchain which provide the token structure for **Octopus Dapp.** The sidechain tracks users' wallet to ensure that users are rewarded with Mollusks for storing website content using Proof-of-Stake, it let user list or delist website contents, and provide the user with send and deposit Mollusks features.

2.4 Storage Marketplace

Our network is made of different user storage systems (nodes) connected to **Octopus** via **Tentacle (swarms within Octopus framework that ensures that each node is connected on a secured peer-to-peer network using cryptographic public key and private keys as authentication. It also ensures that contents are truly hosted on our nodes and peered to the user domain)**.

Octopus is designed to leverage the storage capacity provided by each nodes connected to it. Each nodes running on **Octopus** blockchain will have unique ID. Its storage space will be used by **Octopus** to store user's website contents.

Since data are stored on **Octopus** blockchain using content base addressing, multiple nodes delivers the same content when requested by its assigned hash. In simple terms, user visits a domain with its URL but content are delivered using its hash.

Each node connected to our blockcahin will be rewarded with **Mollusk** (The core cryptocurrency) for storing user's website data and when the end user's website data is requested, thus a proof-of-storage decentralized web hosting platform.

2.5 Artificial Intelligence on Octopus Dapp

In Blockchain, data are store permanently on nodes. In cases where a node is offline, data stored on it becomes unavailable. We have taken initiative by coming up with a cluster. A sub-blockchain private networks of **3 Artificial Intelligence Peers.** This peers are computed to operate independent of the Octopus public network to ensure that unavailable node(s) data are encrypted, organized and replicated on it and further cross check with the public network to meet the public network consensus.

In addition, **Octopus Ai** will predict point of failures nodes by collecting data such as storage space, network connection, processor speed, security breach/vulnerabilities on user devices. By collecting this data, **Octopus Ai** will recommend necessary steps or precaution to take to the user. In cases where **Octopus Ai** prediction is right, it checks the data stored on user's device and compares it with the closest node. If the data varies, it securely disconnect the node refusing further connection until further measure are carried out such formatting the hard disk, reducing processes in cases where the device is being over tasked and quarantine a malware.

3. 0 Domain Registration

Using a user-friendly interface, we bring the seamless possibility of registering cryptocurrency base domain names such as .eth, .coin, .bit and a host of other coins including **WAVES (suggested - .wvs)**

4.0 Mollusks - Our Core Cryptocurrency -

Mollusk is a utility payment token built on Waves Blockchain. Mollusk in biology is one of the preys Octopus feeds on. Hence, reason for choosing Mollusk as our cryptocurrency name.

Mollusk can be used for reward, bills, utility payment and for settlement. Mollusk is the official token for **Octopus Dapp Project.**

4.1 Token Supply

100 million Mollusks exist on **Waves Blockchain.** This will be used for purchase, access to service and reward system on our platforms and partner's platform.

4.2 Mollusks – In the Future

4.2.1 Mollusks Pay

An alternative payment system built to integrate Mollusk Token into merchant's website and applications. This system will let merchants (ecommerce websites, web hosting businesses, and corporate bodies) receive Mollusk as alternative payment option from their customers.

This will be achieved by developing plugins and modules as well as APIs that supports popular management systems like WordPress, WHMCS, Prestashop, Magento, Drupal, Joomla and others. Developer kits will be made available.

5.0 Further details – Centralized Web Hosting

5.1 What We Have Done

Already, we are running a centralized web hosting service. We have been running this service for almost a year now using the centralized model of web hosting, that is location address system. We have so far built our brand to be one of the best web hosting services in our locality. We intend to add Cloud hosting, VPS, and dedicated servers and Blockchain hosting to meet the demand of non-decentralized web hosting community and Blockchain developers.

5.3 What We Want To Do

The growing demand for data storage is on the surge. Traditional models of hosting data are no longer capable to provide vertically scalable resources demanded by big data companies.

Cloud storage is a model of computer data storage in which the digital data is stored in logical pools. The physical storage spans multiple servers (sometimes in multiple locations), and the physical environment is typically owned and managed by a hosting company. Cloud storage mitigates the vertical scalability challenge faced by big data companies.

We intend to expand our centralized web hosting service by owning cloud storage. In 2017, cloud storage market size was recorded at USD 30.71 billion; this is expected to grow to USD 89 billion by 2022. We believe owning cloud storages will enable us partake in the USD 89 billion projection.

In addition to owning cloud servers, we intend to have a our own data center with SSD/HDD servers powered by high speed processors to deliver fast and affordable web hosting service, dedicated and VPS rentage.

5.4 Other Service to Expand

Our centralized web hosting platform also provide SSL certificates, domain registration services, web site builder with drag-and-drop functions, email service and backup services. All these service will be remodeled and expanded to accommodate more users.

6.0 Business Revenue Model

Our business model will receive revenue in the form of hosing fee both on our centralized and decentralized web hosting platforms, domain registration, SSL certification, email management and commission on transaction from client's side that takes place within our ecosystem and Mollusk Pay. Payment for hosting and other services (centralized and decentralized) will be made with Mollusk Token.

7.0 Funding Of Project

To bring the **Octopus Dapp** project to live, **Octopus Dapp** project must support its operations for a minimum of 3 years before it becomes self-sufficient and gain enough users to support our platform. Also, we have a centralized web hosting solution which we intend to add cloud hosting, VPS, and Dedicated servers.

7.1 Project Phases

First Phase; This phase involves scaling up our existing centralized web hosting platform by adding cloud hosting, VPS and Dedicated servers, Blockchain hosting and other services afore mentioned. We intend to have clusters of servers that can be virtualized for users within minutes at an affordable price, get accredited by ICANN, develop our own website builder, and have dedicated WordPress hosting services. This is followed up by aggressive marketing. This will give us the opportunity to compete with existing web hosting companies in the industry.

Second Phase; To increase the usability of Mollusk Token, we will develop our Mollusk client software – a wallet and Decentralized Exchange for easy exchange of Mollusks Token. In addition, payment module will be built for our existing web hosting management system which will give our crypto users option to pay with Mollusk Token. Services paid for with Mollusk token will be cheaper compared to the fiat equivalent. This is followed up by aggressive marketing.

Also, popular plugins and modules will be built for popular content management system to allow easy integration of Mollusks Pay on these websites.

Third Phase; We will build **Octopus** decentralized web hosting blockchain using IPSF as it's backbone to deliver decentralized web hosting to our end users. **Octopus Ai**, PC suits and mobile application are built in alpha stage move to beta stage. This is followed up by aggressive marketing.

Fourth; We will build a friendly user interface web portal for easily registration of cryptocurrency based domain names such as .bit, .eth, .coin and other cryptocurrencies.

7.2 Cost

We have calculated the total cost to be around USD 4 million.

The first phase of the project will go take around USD 720,000, while the second, third and fourth phase will use up the rest of the funds.

The costs to be incurred are – Accreditation, Acquiring servers and required OS and software. Development of our unique website builders, Marketing of phase one, two, three and four, Development of **Octopus** and integration with IPFS to run on Blockchain, AI research and integration, PC suits and mobile app. Legal, administrative, community building, support, and acquisitions.

8.0 Token Distribution & Sale

We are looking to distribute Mollusks Token (MLKT) within a pool of professionals, corporate organization and investors, who are interested in **Octopus Dapp** project. Up to 42% of MLKT are offered to the market with a Venus (Hard) cap of $5Million, a Mars cap of $4Million and a Soft cap of $1.2Million.

8.1 Token Distribution

Total volume cap of Mollusk Token is 100,000,000 at the final sales price of $0.4 (o.4 cent).

Token distribution is as follow;

- 42 Million MLKT will be sold through the Token sale
- 23 Million MLKT are reserved
- 10 Million MLKT is for the team (6% for core team, 3% for advisers and 1% for legal advisers)
- 8 Million MLKT is reserved for Octopus Lab (research purpose)
- 6 Million MLKT for bounty, community manager and influencers
- 5 Million MLKT is for Waves community and general airdrop
- 3 Million MLKT for charity course (community vote for a physical project to do for a local region, this could be educational, food, health or technology based project. This is a 6 years vision with $100,000 annual budget)
- 2 Million MLKT for early adopters of Mollusk products
- 1 Million MLKT for referral and bonus

8.2 Token Sale

We are looking to distribute Mollusks Token (MLKT) within a pool of professionals, corporate organization and investors, who are interested in **Octopus Dapp** project. Mollusk Token Initial Token Sales will be in 3 stages. These stages are described below;

Stage One – Presale 17.5 Million MLKT in total

Phase One – 10 Million MLKT will be sold at $0.032 for 15 days (25% bonus for funding above 1000 USD)

Phase Two – 7.5 Million MLKT will be sold at $0.065 for 15 days (15% bonus for funding above 1000 USD)

Total Token Sold is 17.5 Million MLKT with a total of $807,500

Stage Two – Public Sale 19.5 Million MLKT in total

This stage has one phase and will last run for 20 days. During this phase 19.5 Million MLKT will sold at $0.16. This is equivalent to $3.12Million bringing our total fund raising to $3,927,000. Funding above 1000 USD gets 10% bonus.

Final Stage – Waves DEX

Our fund raising is wrapped up with 5,000,000 MLKT being listed on Waves Decentralized Exchange (DEX) at $0.4. This stage is projected to raise $2,250,000. This strategy help ensure that our token is properly distributed. This stage will last for 10 days. Wallets with over 5000 MLKT gets 300 MLKT bonuses.

8.3 Purchasing Token

All individual contributors interested in our token sale are required to pass a KYC procedure in order to purchase MLKT. Funding above 5000 USD is a private sale and requires investor pass a AML procedures, this may include verification process.

Token sale prices are set in USD, nevertheless, it can be calculated to desire cyptocurrency base the investor wishes to use. In other words, if an investor wants to invest $10,000 to buy 3200 MLKT using Ethereum, the Ethereum equivalent of $10,000 is calculated in real-time market price which is 23.1 Ethereum at $431.87 per Ethereum as at the time of writing this white paper.

The same pricing strategy will be applied for other allowed cryptocurrencies such as Bitcoin and Waves. There is no maximum allowed cap for ETH, BTC or Waves, our target is to ensure that our Venus cap is reached regardless of which coin has the highest investment volume.

Note: Investor must submit their Waves wallet address to participate in token sale.

8.4 Token Vesting

Trading activity will continue for another 3 days, after which follows the distribution of investors token and community airdrop. This will be done systematically by distributing token first to pre-sale investors followed by public sale investors. Lastly, airdrop members get MLKT in their wallets. Nevertheless, all unsold tokens will be burned.

8.5 Fund Allocation

Below is the allocation of fund raised

- 18% - For project first phase which entails expanding our existing web hosting platform.
- 45% - For phase two, three and four of **Octopus Dapp** project
- 25% - For marketing and research
- 7% - For Team support (CEO, Project Manager, CTO, HR, COO & CMO)
- 4% - For Legal advisers, Technical & Senior advisers, Community manager & Influencers
- 1% - Will be reserved

9.0 Road Map

2016-2017

The technical part of the project was based on the achievements of our centralized web hosting; OneNet Servers, created in 2015 through 2017. This timeline includes:

Q4- 2016 Proof of concept and research to define the need for a centralized web hosting

Q4- 2016 Setting up OneNet Servers network and a Alpha website

Q1- 2017 OneNet Servers Beta website with client portal launch

Q3-2017 Branding OneNet Server on Facebook, Twitter & Instagram

Q4-2017 Growing our customer base and social media awareness

2018

In 2018, we started looking into Blockchain as a platform for decentralized web hosting.

Q1-2018 Proof of concept and research to define the need for decentralized web hosting, discussion with the right business and technical leaders.

Q2-2018 Project planning and full drafting of Whitepaper v.0.1, and, logo concept

Q3-2018 Assembling core team, R&D, Whitepaper V1, finalized on logo, purchase of domain names, prelaunch of **Octopus Dapp** & Mollusks Token website, seed fund stage, legal advisory, technical advisory, **Octopus Dapp** website upgrade, **Octopus Dapp** web UI/UX

Q4-2018 Launching pre-sale and public sale (ICO), alpha version of Mollusk Token client wallet and DEX, Token vesting, Listing on exchanges and **Octopus Dapp** UI/UX for mobile app and PC client, expand management/development teams and first charity project

Q1-2019 Initiate centralized web hosting expansion, licensing in Europe, America, Africa and Asia, beta version of Mollusk Token wallet, alpha version of Mollusk Pay plugins, modules and developer kits, strategic partnership and collaboration with businesses across the world, Mollusk Pay integration with centralized web hosting, marketing of centralized web hosting , bounty program for centralized web hosting.

Q2-2019 Blockchain development (alpha), IPFS development, AI development, alpha version of **Octopus** web client, mobile apps and PC clients, beta version of Mollusk Pay plugins, modules and developer kits and project auditing

Q3-2019 Integration trial of IPFS, Blockchain (core) and AI, alpha version release of **Octopus Dapp** on **Testnet,** and bounty program for alpha release

Q4-2019 Mollusk sidechain integration with **Octopus Dapp**, domain name registration integration, beta version of **Octopus** web client, mobile apps and PC clients release, second charity project and auditing of the project

Q1-2020 Upgrade and patches made to alpha versions, Main-net migration, bounty program, reward for loyalty, worldwide marketing campaign launch

Q2-2020 Scaling the project to meet new markets, community meet-up in countries across the world through community managers, partnership with business and auditing of the project.

Q3-2020 Reseller account launched for **Octopus Dapp**

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Acquiring Mollusks Token and storing them involves various risks such as the risk that **Octopus Dapp** may not be able to launch its operations and develop its Dapp and provide the services promised. We advice that prior to acquiring Mollusks Token, any user should carefully consider the risks, costs, and benefits of acquiring of this project in the context of the ICO and, if necessary, obtain any independent advice in this regard. Any interested investor who is not in the position to accept or to understand the risks associated or any other risks as indicated outside this document should not participate.

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10. Team

For details about our team, visit our project website www.octopusdapp.com

...building a faster and secured decentralized web.