

Enderium

Decentralized Serverless Cloud Computing Platform

**White paper V
2.3**

Contents

- 1. INTRODUCTION3
 - 1.1. Serverless Platforms: Adoption Patterns4
 - 1.2. Decentralized Cloud Computing5
 - 1.3. Why Do You Need Decentralized Serverless Cloud?.....5
 - 1.4. Why Choose Endereum?.....8
- 2. DECENTRALIZED SERVERLESS CLOUD COMPUTING9
 - 2.1. What Is It?.....9
 - 2.2. Privacy and Security10
 - 2.3. Why the Need For Serverless?11
 - 2.4. How It Works: Technology and Architecture13
 - 2.5. Principles of the Serverless Design16
 - 2.6. Benefits and Applications17
 - 2.7. Serverless Drawbacks and Solutions22
 - 2.8. The Future of Serverless23
 - 2.9. Summary25
- 3. DECENTRALIZED CLOUD STORAGE AND BLOCKCHAIN.....27
 - 3.1. Microservice Decoupling28
 - 3.2. Computing and Storage Capacity Sharing30
 - 3.3. Decentralized Task Scheduling Design31
- 4.0. MARKET RESEARCH.....33
- 4. Endereum Token36
 - 4.1. Token Model36
 - 4.2. Token Sales and Distribution.....36
 - 4.4. Use of Proceeds.....37
- 5.0 TEAM39
 - 5.1 CORE TEAM39
 - 5.2 Global Advisors42
- 6. LEGAL CONSIDERATIONS45

1. INTRODUCTION

Endereum Inc., a semi-decentralized serverless cloud computing platform, has a vision for a DPaaS model (decentralized platform-as-a-service), which refers to a new generation of p2p and block chain network that will not only provide decentralized services, such as smart contracts, but also hosting services for decentralized apps. In addition to these decentralized databases, storage and messaging is also planned in the near future for the highly replicated incentivized peer-to-peer serverless environment.

The term serverless means cloud services or platforms that permit developers to be free of any underlying concerns regarding the run code and an operating system, which is instantiated and billed only based on its execution time. It is a classification of a broader encompassing serverless term that denotes the capability of supporting individual code functions not necessarily entire applications.

Endereum's vision is to create a decentralized cloud platform that offers highly available, fault tolerant, secure and scalable systems at low cost. We propose a gradual transition from partially centralized and partially decentralized system which offers serverless cloud compute functionality in a highly available fashion. As the ecosystem gains popularity, all services will be migrated to decentralized fashion and more services such as decentralized storage space sharing, IoT, edge computing will be released within the ecosystem.

Recently, the Cloud Foundry Foundation conducted a survey on a global scale spanning over 250 users and concluded that 22% have already switched to serverless technology and another half is evaluating it. The growth of decentralized cloud computing is a force to be reckoned with. We intend to compete with existing storage solutions at both the P2P and enterprise level, in addition to offering lower rental fees. Endereum's serverless cloud platform is suitable for all users, who are looking for a multifunctional platform without surmountable costs.

Data security is crucial as large enterprises will not be open to the idea as long as it does not provide better transparency in all geographical locations where data is stored and the means by which it is protected ([Henschen 2008](#)). Security is maintained using client-side encryption, while data

integrity will be maintained via a proof of retrievability. The impact of infrastructure failures and security breaches will be greatly reduced.

By forming a contract with a storage provider or a Host, it provides better scalability, durability and higher levels of redundancy in decentralized architectures in which storage clusters enables the host to maintain a secure platform for its users via compartmentalization. The platform gradually stores the client's data and maintains the proof of usage until their contract expires. Since these proofs are publicly verifiable, using block chain technology, network consensus can automatically enforce storage contracts.

In particular, the use of erasure codes can enable high availability without excessive redundancy. Endereum provides a currency system that allows the tokens earned by the Host to be used universally with multiple vendors, even in case of aversion to cryptocurrencies.

The main disadvantage that miners face today is the loss of great computing resources due to inefficiency in the calculation of hashes in POWs, i.e. Proof-of-Work consensus algorithms that are generated by huge mining pools. The future of mining is in the mini data centers that are specifically used for hash calculations. The development of miners into mini data centers for app hosting will yield an even higher and more profitable result.

1.1. Serverless Platforms: Adoption Patterns

Digital transformation includes iterating, building and testing on applications to meet the customized needs of a constant digital customer experience. Serverless platforms enable the developer to focus on developing and writing code without having to think about infrastructure. Companies only pay for the exact amount of resources by the applications which eliminates the need for pre-bought capacity. Our serverless cloud platform allows the developers to focus more on solving business problems providing an acute market differentiation.

The new technology is rapidly recovering the chasm and is trying to bridge the technology focused adoption and the business-oriented adoption. Our decentralized serverless cloud platform follows the conventional adoption curve and is a new way in the way of abstraction for business applications. The serverless adoption is different as it is more aggressively integrated into systems due to its utility and its suitability to host applications that automates application management and administration of the environment, making it easier to run code.

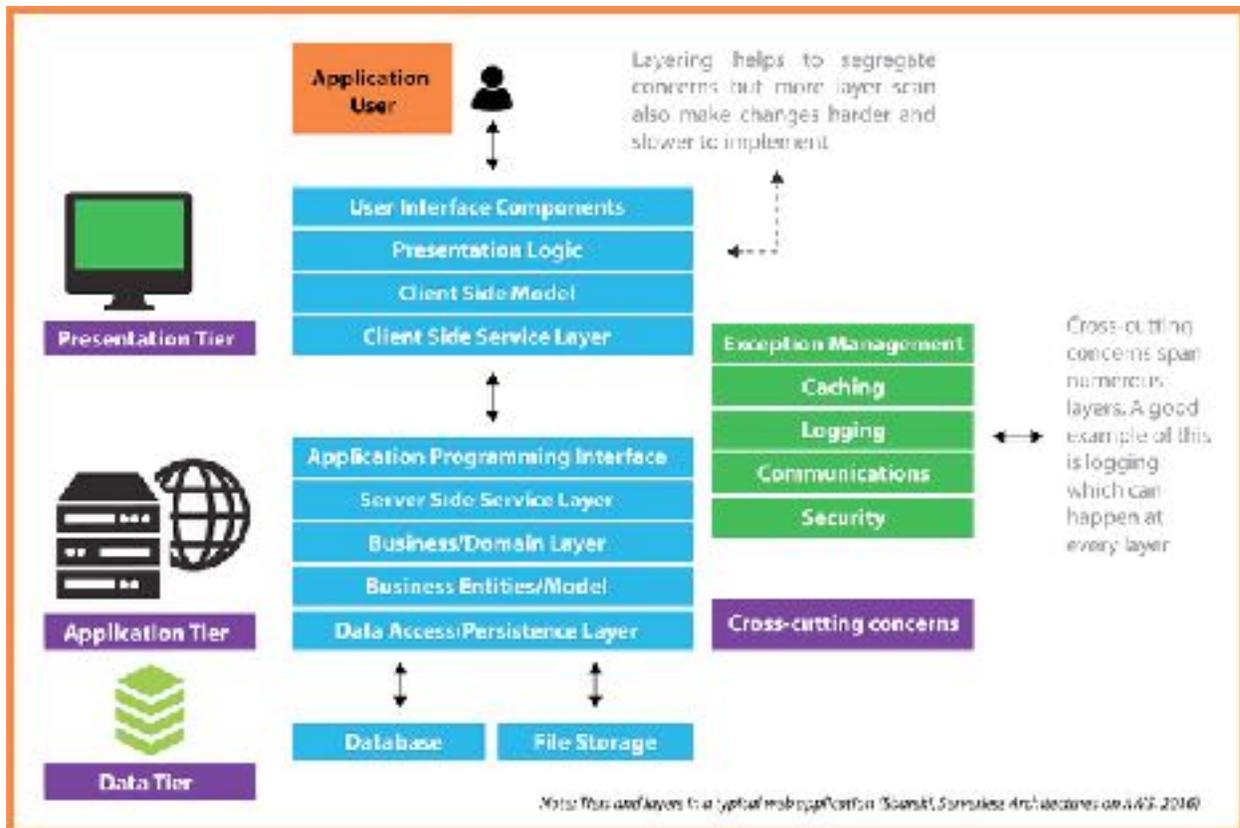
1.2. Decentralized Cloud Computing

Endereum focuses on building the foundation for a digital enterprise of decentralized cloud computing that changes the face of block chain technology enabling it to become pervasive in daily applications. Decentralized technology can be a great help to reduce IT costs and allows the conception of applications which is impossible with legacy architecture. The idea that you pay for only the computing power that you use to run your application and nothing more or pay-per-compute is the biggest innovation of our time.

This is instrumental in the implementation of block chain technology across digital and business enterprises. Endereum serverless platform uses a distributed chain of machines to execute code by using block chain tech, shifting the paradigm of business application and enabling companies to reallocate their resources and upkeep away from maintenance, allowing them to focus more on expansion and innovation. The serverless computing eliminates the worry of storing, securing and scaling the application by providing an enterprise to run on shared computing platforms, leaning towards being location agnostic.

1.3. Why Do You Need Decentralized Serverless Cloud?

A traditional cloud storage will have the data stored at a data center which is not always near to the client's physical location. When the client wants to access the data, the computer will send the request to the data center and you get access to your files, but you can face delivery delays.



Traditional cloud provider will be responsible for providing highly available computing resources, making sure they are well maintained when idling, hence incur cost on storage, maintenance, hardware engineers and system administrator. To compensate for these overhead expenses, cloud providers usually charge its services on premium.

Not only are the traditional data centres difficult to maintain with controlled temperature, regular updating and maintenance and refreshing of tech constantly. Moreover, if you consider the safety aspect, it is much better to choose a serverless platform, where it is virtually impossible for the host to share your encrypted files with a third-party.

TRADITIONAL vs SERVERLESS

TRADITIONAL



SERVERLESS (using client-side logic and third-party services)



Setting up multiple environments for serverless is easier as it is a pay-per-execution which eliminates the need for setting up Dev, staging and productions mechanisms. With a seamless and automatic scalability, it is easier to mitigate and address any errors. It allows complete management of servers with event-driven scalability and invocation based billing. With the illusion of infinite resources, it allows clients to forgo planning far ahead for provisioning. Clients can start small and increase their hardware based on their needs as serverless eliminates the need for an upfront commitment.

Moreover, the conservation of machines due to pay per use computing resources is also rewarding for the ecosystem. With decentralization of the cloud platform, higher levels of scalability, durability and redundancy can be achieved through decentralized architecture. Endereum strives to create a peer-to-peer network to add another layer of security to our network. Without a singular location to attack and full data encryption, it is virtually impossible for a hacker to manipulate files, which are distributed and shared across several networks across multiple locations. For each file the encrypted

shards will have to be retrieved individually and then decrypted, making retrieval impossible thus creating a secure ecosystem. The Endereum ecosystem offers both on demand cloud computing resources to services providers also allow internal load balancing based on geo locations.

1.4. Why Choose Endereum?

With the increasing number of websites, there's a direct correlation to a growth in cloud system infrastructure services. With these statistics, Endereum aims to maximize on this growth by offering a serverless cloud platform that's fast, secure, scalable and cost efficient. We aim to evolve beyond the event-driven architecture utilizing the serverless cloud computing platform in conjunction with blockchain due to their similarity in being highly distributed and event driven with the ability to process multi-layered function which Endereum plans to capitalize on. The combining effort of both decentralized serverless cloud computing platform and the blockchain is bound to create a prolific effect with their joint characteristics working in a cohesive representation of the system. They are both fault-tolerant, idempotent, event-driven and can cater to public, private or hybrid needs, which we think fits into our long-term plans justifiably.

2. DECENTRALIZED SERVERLESS CLOUD COMPUTING

2.1. What Is It?

Cloud computing enabled the world to develop software millions can enjoy and use. The importance of hosting infrastructure cannot be ignored in a world where users can access applications from anywhere in the world on demand. The infrastructure consisting of data centers that are maintained and monitored by service providers, who are incentivized by the costs they charge their clients. The serverless cloud platforms have decentralized the paradigm exposing cloud services as a sophisticated means of not only transferring data but also having sophisticated business applications.

Endereum works through peer nodes to directly maintain contact with users in a decentralized way with the main role to reduce costs, interoperability, and resource aggregation and to increase autonomy, scalability, reliability, anonymity, privacy and mutual communications as well as ad-hoc collaboration. Endereum serverless cloud promises to deliver results with next-generation distributed data centers built on storage technology and virtualize computing.

The word serverless doesn't mean that there are no servers at all. It rather refers to the fact that the developers don't have to worry much about them. Computing resources can surpass their physical limits without any pre-emptive management. Endereum decentralized cloud platform serves to store data, manage servers and also oversee the management of other infrastructure resources. Serverless allows developers to focus more on task and problem solving allowing service providers to focus on the system needs and application hence absolving them of complexity of backend infrastructure. Serverless started with no less controversy than any other newer technology and was critically questioned regarding its event-driven architecture and employing micro-services. We have come a very long way.

One of the major attributes in development of serverless platform or functions is processing and considering each micro service stateless, which refers to each task being distinct and separate and having a signature and singular node of information enough to fulfill a processing request. This platform uses computational resources, focusing on individual workload without storing any software configuration within it. With a distinct start and end state each service processes the payload in a similar fashion based on

the principles of clean micro service and functions, conforming to the principle of Single Responsibility Principle (SRP).

Endereum serverless has one vector or dimension of change. Another attribute which differs serverless from traditional platforms is that serverless services are ephemeral. They only persist for a pre-arranged period of time and depends completely on task processing and event handling. Idempotence is another critical feature which at the base level has the ability to get a similar result by running the same task, enabling it to run many identical requests and resulting in a similar result as that of a singular request. This is an extremely functional attribute that can come in handy in concurrent and asynchronous tasks.

2.2. Privacy and Security

Endereum saves files in a truly secure, reliable and private cloud in addition to a faster, cost effective and secures cloud platform. Endereum is born of efficiency, intuition and a need to create a seamless user experience that is highly customizable, easy to use and powerful. With Endereum serverless cloud, data is never stored in a single location. Instead, it is split into several pieces, encrypted and then stored over several locations and distributed among several machines with only the user having the power to access their digital possessions.

Cloud services are not without vulnerability. Encryption walls can be bypassed and user's encryption have become available to hackers in the past. For ages, big IT companies have bypassed user's rights and have violated the terms of privacy. Endereum as a company has no rift between privacy and business models and will strive to fundamentally protect the rights of their clients and be transparent in all our privacy and security practices.

One of the most prominent steps that Endereum has taken to protect data is that before it leaves the device of a user it is instantaneously encrypted in a format, which is generally used by the government and banks. The digital encryption keys ensure that only the user can access their data. Another undertaking to protect the user's privacy is to never store data files in a central location. Endereum divides and spread data across its decentralized network. Any hacker would have to bypass thousands of servers to obtain data and if they are successful in doing so, it will still have to be decrypted. In addition to that, files are autonomous and not even the host knows which

file belongs to whom. Each single host is trusted with only a part of the file. Meaning that a user's data is everywhere at once.

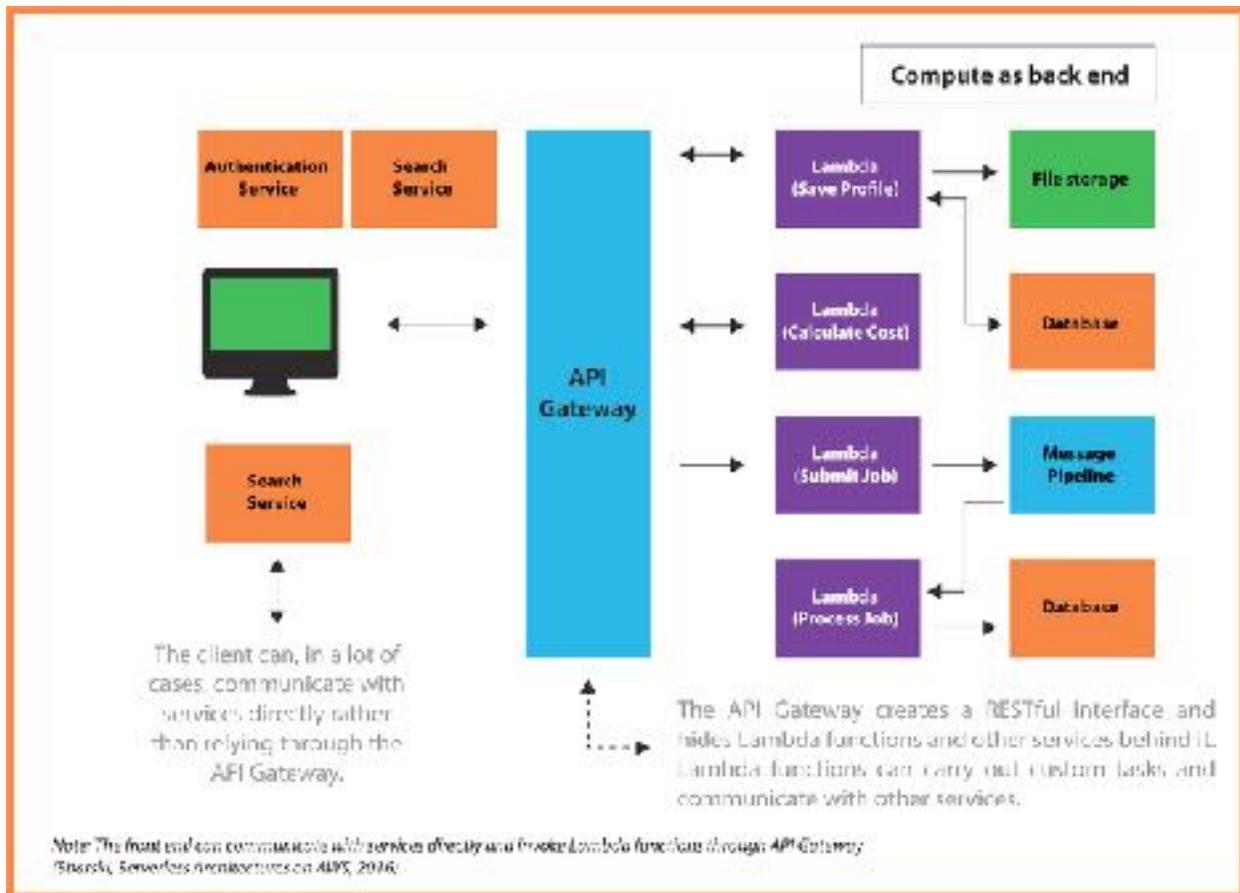
2.3. Why the Need For Serverless?

Endereum serverless cloud platform is a perfect solution to the complicate three-tiered infrastructure, which is traditionally quite difficult and expensive to maintain, manage and set up. Developers have faced exhaustive and time-consuming complications while modifying simple aspects of application. Serverless cloud plans to do away with all of it by providing scalability, elite performance modules and the fact that you only pay what your app consumes. This direct linear relationship between the cost of an application and the efficiency of your code allows serverless to play a central role in the enterprise.

The increased agility, scalability, resilience and higher developer productivity is possible only due to the architecture and the micro services adoption, which has helped popularize certain aspects of serverless to those who have a clear desire for separation of concerns. The main question in everyone's mind might be *why the need for serverless?* It is mainly due to the rejection micro services have faced over the past couple of years having being dubbed as monolith systems that have slow development cycle, shared states, high coupling states and complex deployments.

Developers might think of micro services as autonomous devices built for performing certain business capabilities. Teams can work in parallel and build resilient and powerful distributed architecture. Another challenge for a micro service architecture is that it has to perform better than a tightly wounded monolith with their own set of challenges, handling in-process contacts, being remote and handling more complex errors, as well as provisioning for a high performing infrastructure and most importantly management overhead. Adopting and running micro services on multiple servers can be expensive. Servers can sit idle while incurring costs.

In addition to that tradition, servers also have issues regarding architecture and software design pertaining to web and mobile applications with three-tiered architecture composed of several layers, each designed specifically to deal with domain logic, data access, API and services, data persistence, business models and so on. This can all add up to an overwhelming level of complexity. This is where serverless comes into play.

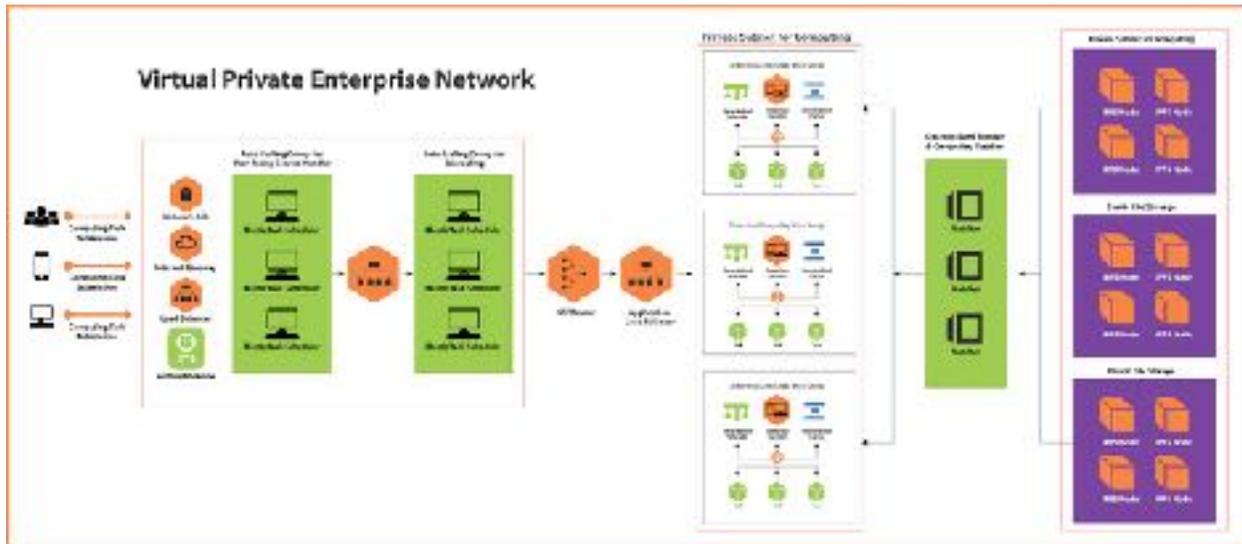


Serverless is a streamlined version of a traditional system, which abolishes the need to manage infrastructure by allowing developers to focus on reducing the amount of code they write by making high-speed APIs having a single purpose with the ability to build efficient architectures efficiently, which are scalable and loosely coupled, hence allowing developers to move away from infrastructure and server architectural concerns and focus primarily on code which is what everyone wants. A serverless can execute codes parallel in response to events, respond to HTTP requests or can be invoked by using an API. There are no monitoring costs or over-provisioning or under-provisioning which can be a massive threat to performance. Clients are charged by seconds for their code execution. And never for idle capacity and unused servers.

Ethereum Serverless platforms unit of scale is an ephemeral function which runs only when needed that results in a clear outcome: the cost of the costs is directly proportional to the performance of the code measurably and visibly. The better the code the faster it will run and the quicker the function will stop executing the cheaper the overall cost would turn out to be. This

can not only influence design decisions of functions, caching approaches but also the dependencies on which the functions relies on to perform tasks.

2.4. How It Works: Technology and Architecture



Serverless cloud computing functions or FaaS are not just PaaS in disguise as the unit of scale between them is quite different. Traditionally, PaaS systems are less granular as users have to work with VMs or the amount of dynos for provisioning which takes it longer to provision and then de-provision. However, when a serverless function is created, it happens in a couple of seconds for a cold function and some milliseconds for a warm function. It also depends on the language runtime such as JavaScript, Python, Lambda Supports and Java and on the number of scripts that are needed to load. Serverless functions are termed as stateless i.e. there is an absence of state while function initiation.

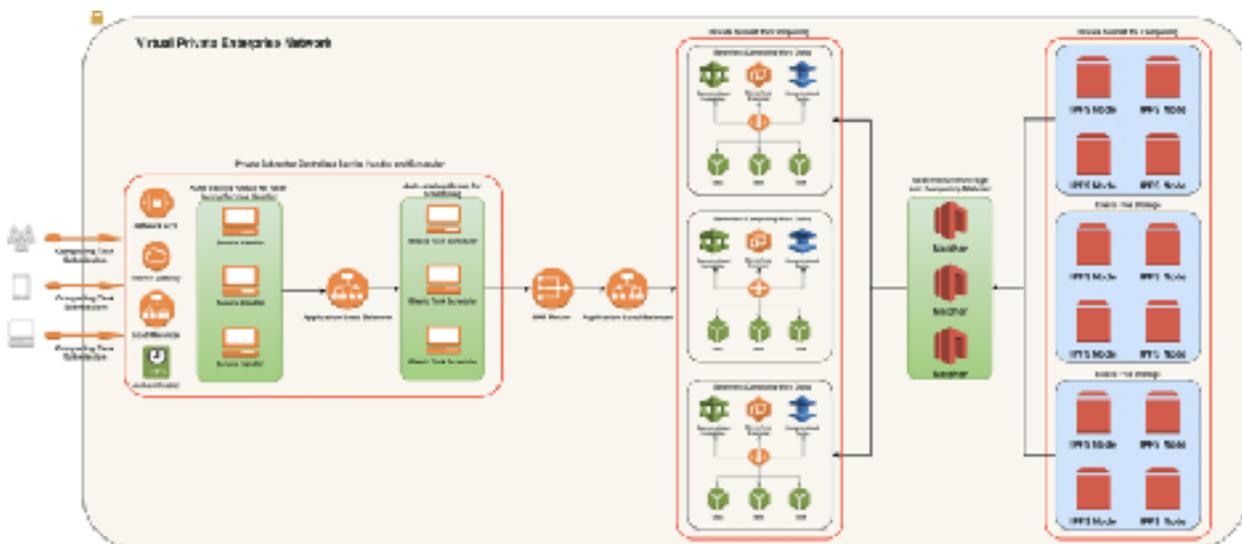
"None of the in-process or host state that you create will be available to any subsequent invocation" (Roberts, 2016).

Statelessness is itself powerful due to its efficiency in handling constantly changing number of event requests. Serverless technology is built on containers, which allows developers to focus on code and software architecture.

Ethereum aims to use third-party services and APIs to outsource work, which is not unique or have a core value to the overall goal, enough to make

any difference. If developers are not building an authentication or registration system or fail to manage payment complexities, we can handle that allowing them to focus on problems on their end making a substantial difference to gaining an upper hand in market domination.

This is referred to as Mobile Backend as a Service (MBaaS) or Backend as a Service (BaaS). Third party services and serverless work perfectly together with cloud functions adding inference between them, coordinating invocations, orchestrating and coordinating workflows and marshalling data, making FaaS a powerful tool to manage third-party services without looking after the servers, thus allowing for efficiency in developing and reducing latency.



Serverless architectures can also benefit systems that need high volumes of back end processing by adapting to a microservice approach in which each serverless function is denoted as a microservice, either autonomous or contained. However, Endereum doesn't force its consumer to adopt micro services but provides you with the flexibility to work within your limits and definite set of requirements. Developers also have a choice to build nanoservices, which are basically a set of all functions that can help carry out operations all over the system that have few core responsibilities.

Developers can create functions by using FaaS to execute encrypted actions that fail to run on the front end pertaining to their security and privacy nature. Any sensitive information that cannot be directly accessed on the

browser or the client's personal device can be loaded by using these actions. Any operation that have a propensity to leave the system in a state of failure can also be performed using these actions. These microservices tend to perform singular tasks with an option to run additional tasks. These patterns of a serverless platform reduce the overall codebase.

Let us explore a practical example to help understand the workings of a serverless architecture and cloudless platform. Our experts at Endereum realize the potential of a serverless cloud that can be utilized as a backend data processing service. That can be understood if we first realize how a traditional system differs from a serverless one. For example, if you writing the code for a user based application and its major requirement is that it is quick to respond to UI requests and can cater to each and every user activity that is occurring during subsequent processing. This concept can be better understood if you take into consideration an online advertisement platform.

When a user responds to an ad after clicking on it the system should redirect them instantaneously and directly to the origin of that ad. However, simultaneously the system must be able to record the instance so that the advertiser can be justifiably charged for the click by the user. Traditionally a server may need to look like the one illustrated below, where the ad sever can synchronously respond while displaying a "click message" on a channel. This message can then be asynchronously processed by an automated processor application that automatically updates the database such as decrementing the budget of the advertiser.

However, a serverless platform performs on principles which may seem worlds apart. As illustrated in the diagram below, the modification made in the architecture is not big, when compared to our traditional system, which makes asynchronous messaging quite popular even in serverless platforms. The main difference is the constant message-consumer getting replaced by a FaaS function, which runs in conjunction with the event-driven context that is provided by the vendor. The decentralized cloud platform vendor is responsible for providing the FaaS environment as well as the message broker. Both of these systems are closely knitted together. The FaaS environment processes messages in parallel in great numbers by instantiating serial copies of the primary function code. It also depends on how the original process is written.

2.5. Principles of the Serverless Design

There are a number of serverless principles that Endereum follows to keep a cohesive nature of operations and management. This will basically give you an overview of how a serverless systems operates and what are its core properties. These are more applicable if you are interested in adopting a serverless approach.

I. Employing computing service for executing code on demand

A serverless cloud platform such as Lambda must be used for executing or running the code as it cannot be managed by or run by other servers or containers that the company might own. A customized code can be run with the FaaS approach to gain maximum advantage.

II. A single-purpose functions

The single responsibility principle is what applies here aptly. We write functions that are stateless and has a singular purpose. In making them so it makes it easier for us to test, debug and expand on such functions. If building a microservice around these functions the adequate level of granularity is decided depending on the context and requirements of the needs of the clients. Granular services are more commonly based on a specific action and thus unique to each client.

III. An event-driven pipeline and a push-centric design

In creating push-centric and event driven pipeline it will make it easier for us to compute and handle complex tasks and computations. A serverless cloud platform can orchestrate different actions between several services that results in an event driven pipeline which is mainly to avoid manual intervention or polling.

IV. Powerful and profound front ends

We aim to try to move as much logic to the front end and to work harder to make it smarter the front end must be able to interact and deal directly with services to limit the amount serverless actions. In cases where the client cannot communicate with the service vendor directly or may not choose to due to privacy or security reasons, it carries out the respective functions without any manual intervention.

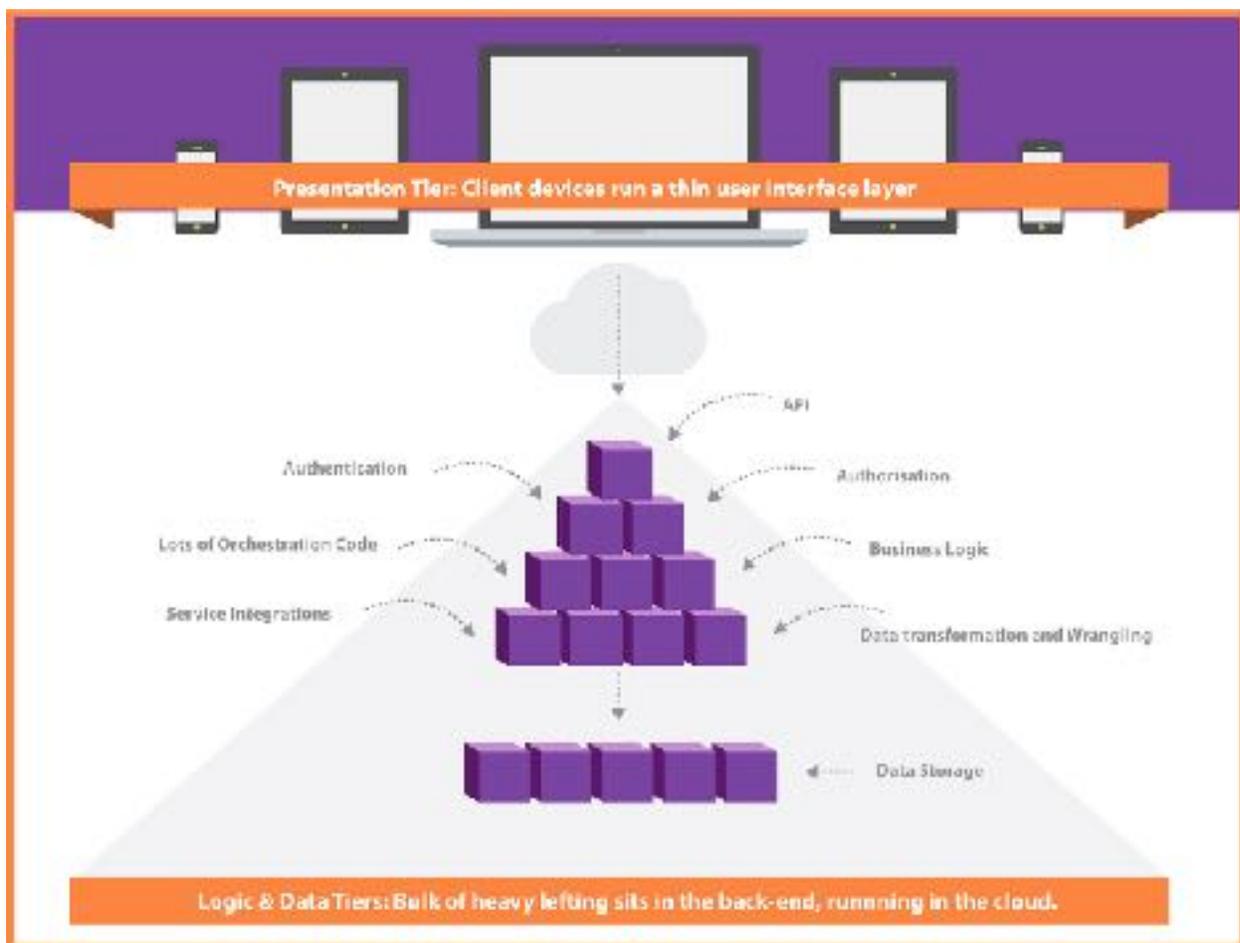
V. Adopting third-party services

The amount of custom code that is used can be minimized by using leverage services that are built by others. However, there is one point you must always accede to i.e. to make a knowledgeable assessment depending on the possible risks. This principle of the serverless cloud platform can help you to trade control for imminent speed.

2.6. Benefits and Applications

Here are some of the benefits of deploying applications using a serverless platform.

- **Low Operational Cost**



As an outsourcing solution, you cannot beat serverless. It's simple in its working and allows clients to disengage themselves from the worry of managing servers, application logic and maintaining databases, which in turn allows them to spend their time in self-management. It is a pre-defined service that many others will also be using, an Economy of Scale influence can be seen which is to incur less costs for your managed databases because

a single vendor is managing and running hundreds of application like yours. The reduced costs can be a contingent of two aspects. The most important is the infrastructure costs which results from sharing basic infrastructure i.e. hardware and networking with hundreds others. The second in less labor costs as it allows you to spend less time on an outsourced serverless system which is starkly different from a server that is developed and hosted by yourself.

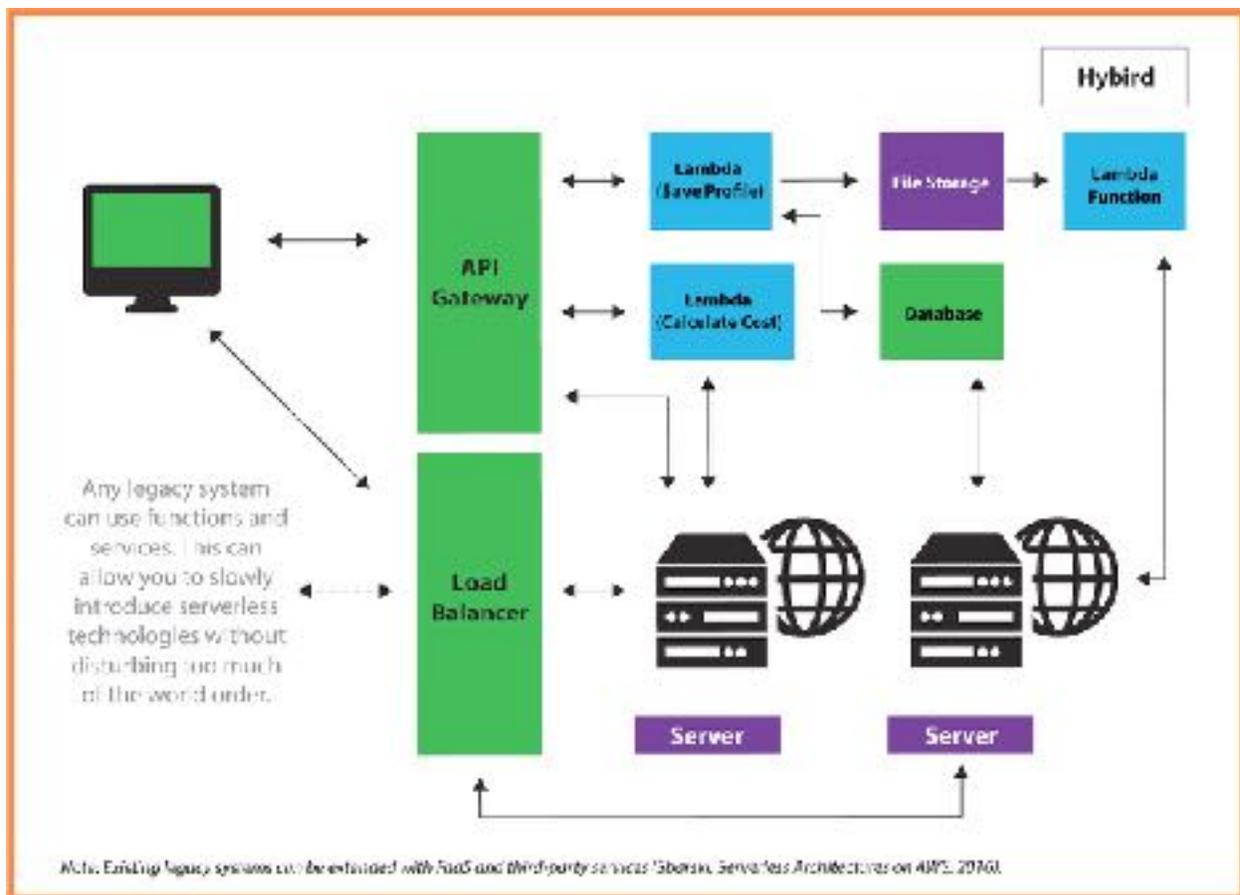
Serverless computing has come a long way to bring this powerful advantage to us. DevOps brings forward an acute focus on the deployment on functions, organization of environments and infrastructure management. However, its nature makes it possible to not worry overmuch about the infrastructure, network configuration and operating systems as all these tasks are controlled and carried out by the vendor by in-house teams or outsourcing. Serverless cloud computing platform has caused DevOps to change drastically with an enhanced focus and drive to improve the main priority on automation.

- **Reduced Development Costs**

IaaS and PaaS are both based on a premise of a server and an operating system management that can be commoditized. Serverless BaaS is however commutative result of whole application components that are simultaneously modified. Take authentication as an example. Most applications code their authentication functionality to their own and it often includes features like password management, login, signup and integration in conjunction with other authentication providers. This log remains same with most authentication providers and applications and there are services that allow users to include ready-built authentication functionality that are vital to the applications without the need for users to develop it themselves.

BaaS databases are another aspect of this benefit. Endereum serverless cloud have found that it is much more beneficial to let the client directly have contact with the server-side database. BaaS databases eliminates the greater part of the database administration overhead and allocates mechanism for performing suitable authorization for a plethora of users. There is no denying them amount of successful companies that have already made that leap and have been able to produce successful products without any of their own server code.

- **Low FaaS Scaling Costs**



As we have mentioned it earlier that serverless FaaS has many benefits along which being a horizontal and scalable platform is foremost with the ability to be elastic, manageable and automatically looked after by the provider. There are a number of benefits to this but the biggest advantage is you only have to pay for the elements that you need, which can be as low as a 100 ms boundary pertaining to applications that require low computing needs, making our serverless platform a huge win for you. Here is an example to elaborate our point. If you are running any server application that has the propensity to only process one request per minute. This can take you 50 ms to process a single request and your CPU usage for an hour can run to 0.1 percent. If you deploy the application to its own dedicated hosts, it can be hugely inefficient. What we propose is so much better which I a thousand similar applications can run simultaneously and share that one machine.

Serverless FaaS pinpoints this inefficiency and allows you to benefit with reduced costs and better performance. In truth you will just be paying for 100 ms of computing power per minute which is approximately 0.15 percent of the aggregate time. For microservices that don't require much computing

power to begin with can benefit from this the most as they have very low load requirements. It provides disintegrating support to components by domain and logic even if it results in a prohibitive operational granular costs.

Costs benefits are often great motivators and democratizer. Even small companies with the mindset to dip their toes in the waters of the newer technology can try it out for their computing needs, especially if their workload is relatively smaller however not really insignificant. Most of the time they may not need to pay much computing costs due to a free tier technology provided by most providers.

- **Operational Management and Deployment**

Easy operational management although some aspects of a serverless cloud computing model may seem complicated and difficult to some users, it's important to note that the operational management of a serverless platform is far easier than its architecture as it has to support less components for computing relating in less work. The scaling advantages of serverless cloud extend far beyond just the infrastructure costs. It's worth noting that the scaling functionality doesn't only reduce computing costs, it also make the operational costs infinitesimal compared to traditional computing platforms. This is all because the scaling is automatic.

If scaling is manual, an IT personnel will have to singularly add and remove all instances related to an array of servers. Moreover there is no need for setup as well as maintenance as scaling is provided by the team of Endereum professionals. The client will no longer need to ponder over the requirements of how many simultaneous and concurrent computing requests can be handled by them before they eventually run out of memory. Our serverless platform can significantly lessen their load.

Another great aspect of this benefit is that the deployment complexity is hugely reduced as well as the packaging that is often partner to such operations. All the client has to do is package their own code into a simple zip file and upload it. The absence of start/stop shell scripts, Puppet/Chef or the decision as to the number of containers the machine can deploy in a single time is greatly benefitting to a company which is just getting started. A newer company may not need to write tier code into the vendor console itself.

Another great benefit is that in addition to easier operation management it gives companies more time to market their product and allow continuous experimentation to their developers that can better improve the product and accelerate it towards perfection or a product that runs smoothly. The less time or costs spend on operations can help the product become more geared towards agile, fast and efficient processes where developers can continuously try new things to try and for marketing as well as time to update the operating systems with simple deployment and continuous delivery which allows fast iteration of projects. Initial deployment projects can be experimented with minimal costs and a low friction capability. It is the reduction in the lead time that will make most companies more excited. It will not only enable your product development processes to enter in a continuous experimentation phases but also allow for a truer version of revolution for how to deliver software to companies and users alike.

- **A Greener Version of Computing**

There has been a huge boost in the number and sizes of several data centers around the world that require gigantic and numerous physical resources that are necessary to build and maintain them. Their energy requirements rival those of small urban cities. They may remain idle when not running applications but they still consume power. This is where serverless cloud computing comes in. they are not only more efficient but also great for the impact they have on our environment. Which makes them a greener alternative for what is currently being practiced all around the world.

Companies have resorted to cloud computing platforms as it allows them to buy servers on demand that they are in absolute need of and then provisioning these servers for necessary tasks with enough capacity management. In a serverless world, we will no longer be able to make the decision of allocating servers based on future demands. The team of Endereum personnel have the capacity to handle such requests with ease. As a provisioning vendor we can make capacity decisions I real time based on an aggregate that will be suitable for all our customers. This is the most important difference between traditional and serverless platforms as a serverless cloud uses less resources around data centers and its reduction in harmful intact on the environment makes it a greener choice thus making it more attractive to customers.

2.7. Serverless Drawbacks and Solutions

Despite its name, serverless doesn't really mean the absence of a server. However, the business or the person that employs this service doesn't have to rent, purchase or maintain the provisioning of the servers for running backend code. The serverless code can be employed cohesively with the code that is written in a traditional style (microservices). Or an application can be made in a way that it uses no provisioned servers and thus doesn't have the need to work in conjunction with servers. A serverless platform may seem like the solution for every problem a developer might have faced with a traditional cloud platform, but it's not without its drawbacks. Here are some of the disadvantages.

- **Third Party API Services And Their Problems**

Some of the disadvantages that arise due to third party APIs is multitenancy drawbacks, security issues, and vendor lock-in and vendor control. One can also face system downtime, loss of functionality, cost changes, forced upgrades regarding APIs and unexpected limits. The multitenancy issue can also be observed on other cloud computing structures. The developers have to avoid all major mistakes while employing Salesforce as it imposes limits because of the multitenant cloud framework and solutions that can have issues and problems with performance, security and robustness.

- **Absence Of Operational Tools**

The developers mainly employ monitoring and debugging tools albeit debugging distributed micro systems are quite difficult and needs access to a large amount of subsequent metrics for identification of root causes.

- **The Complexity Of Architecture**

It takes time to ascertain and to decide how minuscule the function should be and how much time it will take to test, assess and implement. There must always be a balanced environment between a number of functions in case of an application getting called. It is too complicated to manage different functions and if developers ignore the granularity of the functions it may create mini-monoliths. Although many companies use the same platform for both production and testing there is a limit on how many simultaneous executions can run concurrently and if ignored it may trigger Denial of Service (DoS) accidentally on the production applications that you are trying to execute.

- **Implementation Issues**

Serverless apps are easy to use but their integration testing is not that easy. Serverless FaaS use integration units which are smaller than traditional architectures and may rely more on integration testing as compared to other architectural styles. Developers may face deployment, packaging and versioning issues. You may also face the difficulty of deploying FaaS artifact for independent applications. Moreover, you cannot automatically deploy several functions at once and there is no concept of versioned applications therefore atomic rollback is not possible. You may also need to trail back and turn off the event source which is currently triggering the functions, thus deploying the whole group of functions and then turning on the event source again.

2.8. The Future of Serverless

Serverless is a fairly new world with extensive implications and applications. It is a technology that has the potential to grow and expand in the coming years with many economic profits to gain from it. We at Endereum are in the process of developing a way to operate serverless cloud computing platforms with lesser mitigations and drawbacks or at least remove the inherent implementation of drawbacks. However, with so many newer avenues to work with, serverless continues to grow with tooling being the foremost tool for implementation and deployment for bundling and configuration.

With high-level release approaches, we aim to provide smooth traffic shifting processes and distributed monitoring, as well as remote debugging capability which makes serverless a powerful component to have in your IT arsenal. The improvement in the tooling for Meta operations, FaaS functions and configured services have made serverless better than traditional servers when it comes to cost responsibilities, grouping and visibility and as well cross-service costs.

Serverless has made it possible for a better solution to traditional approach of stage-management with low-latency solution and access to data that is mostly out-of-process with low overhead. Different kinds of hybrids are poised to make it into the market which will not only take into account the application architecture of the serverless cloud platform but also the externalized state limitations. Low latency applications will have a new approach of a common long-running server which can gather all external and

internal data and context from local and external states to run FaaS functions with a completely contextualized request. Moreover, in the future, serverless cloud platforms will pave the way for improving implementation platforms, execution duration, cross-function limitations and constraints as well as start-up latency. With newer solution these will be further improved for applications.

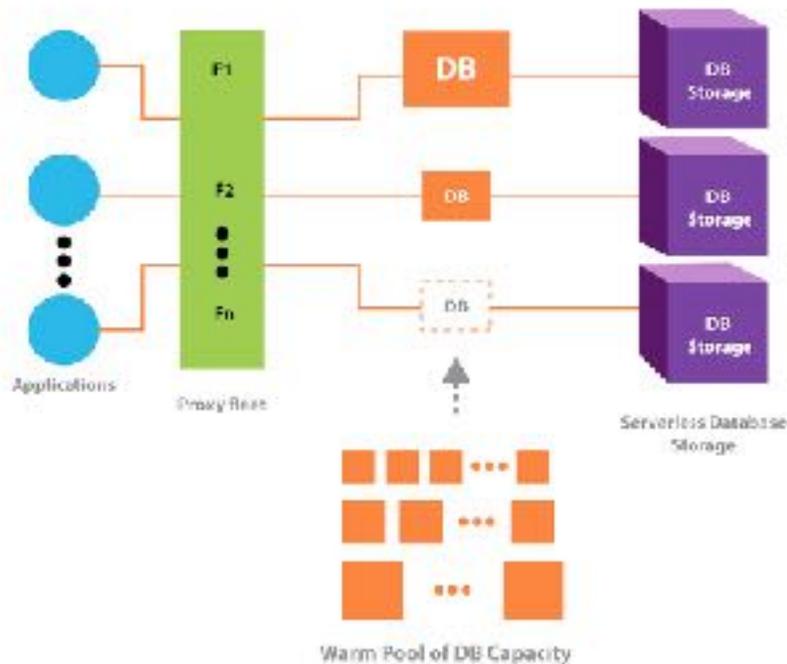
Another great prospect is education of serverless architecture and technical operations and allowing personnel to think actively about the ecosystems that are hosted by the vendors and to consider meaningful questions relating to parallel solutions for different vendors when one becomes unavailable or the degradation of applications due to a partial outage. Although many of these function come naturally to developers and technical leads, it is better to have educational platforms available for those who wish to expand their knowledge on the subject. This will be accompanied by the choice of increase in transparency and a clear set of rules and expectations from the vendors, especially on the subject of mitigation and the hosting capabilities.

Serverless is on the brink of technological breakthrough with subjects like hybrid architectures in the works. Persistent server components and injecting BaaS into a tradition ecosystem are some of the avenues that will present themselves on the coming future. Usage patterns and the huge amount of data-processing pipelines which are highly scalable act as glue to the code in operations. Additionally, serverless functions can be run on devices and the machine learning models can be run through mobile clients and in no time the spectrum of the component's locally will allow the serverless to expand and become infinite and region less, making it a globally distributed architecture.

Newer approaches are taking serverless cloud platforms beyond FaaS-ification. Most companies are focusing on converting the existing FaaS function into stateless functions which is powerful but with better abstractions and newer language applications appertaining to the cloud, FaaS can be used as an implementation strategy by the developers without pondering over the applications of these discrete functions. Integration as well as acceptance testing services provided by Endereum is a fine example of how cloud native ecosystems have developed from traditional systems from years ago.

Serverless Databases

The Future of Event-Driven Architecture



It is planned to embrace and adopt ideas like monitor driven development and production testing and once the code has passed the test for unit validation to deploy it to the subset of traffic and observe how it fares compared to the precious and traditional model. This can serve as a surprisingly efficient tool for many teams who have issue with testing phases. Moreover, there are numerous applications for portable implementation of the serverless cloud platforms that can allow clients to have abstractions over the implementations set by the vendor. This can ease operational tasks for applications run by the serverless in event that the developer is acutely aware of the FaaS coding its modeling abstract and how its interface reacts to the standardization. With certain value in the deployment abstraction regarding multiple platforms the complexities of the operations can be somewhat made simpler and clearer.

2.9. Summary

Serverless is a specific style of architecture that relies on running a server-side system with conjunction with specific parts of applications to a smaller

extent as compared to the traditional approach. The two common techniques BaaS, where we previously integrated third-party application services remotely and directly into the front end of the applications or FaaS, which is a server-based code that moves to ephemeral functions through long-running functions. Although serverless might not be a good fit for everybody but with such huge economic and futuristic developments and breakthroughs as well as potential, it is easier for most companies to replace their existing outdated architecture.

Endereum allows you to dive into the serverless world where the scaling and deployment effort of monitoring and debugging is enough to convince you to make the change. Reduced operation and deployment costs, less environmental impact and better operational management is enough to make you think of all the unearthed potential of this newest technology in the cloud computing world. Not to forget the approach of decrease in feedback loop for creating new application components because it is much better to provide technology to the end user in order to gain an earlier feedback which can result in less time or marketing and promotion ad launching the new product in the market.

The data sovereignty, documentation, cost and support and the viability of Endereum makes migration of services much easier. Better options for tooling and support, distributed computing architectures, granularity and the reduced time ti access, test, implement and refactor data makes it far superior than traditional architecture and microservices.

3. DECENTRALIZED CLOUD STORAGE AND BLOCKCHAIN

Endereum Inc. is a semi-decentralized cloud computing platform that intends to compete with existing storage solutions at both the P2P and enterprise level. Instead of renting storage from other centralized providers, Endereum offers storage rental for lower fees. This decentralized cloud storage network benefits many users, in comparison to other storage methods in the market. Data security can be maintained using client- side encryption, while data integrity will be maintained via a proof of retrievability. The impact of infrastructure failures and security breaches will be greatly reduced. By forming a contract with a storage provider, (known as Host) it allows to periodically store a client's data to submit proof of their continued storage until the contract expires.

The host is compensated for every proof they submit and penalized for missing a proof. Since these proofs are publicly verifiable, using blockchain technology network consensus can automatically enforce storage contracts. Importantly, clients do not need to verify storage proofs as they can upload the file and let the network do the rest. We acknowledge that storing data on a single untrusted host guarantees little in availability, bandwidth, or overall quality of service. Therefore, we recommend storing data redundantly across multiple hosts. In particular, the use of erasure codes can enable high availability without excessive redundancy. Endereum provides a currency system that allows the tokens earned by the Host to be used universally with any vendor, even if they don't accept cryptocurrencies.

While it used to be possible to mine your own cryptocurrencies using a regular PC, for the most part that is no longer the case. As more people start mining, the hardware necessary to mine effectively increases from a moderately-powerful processor, to a high-end GPU, to several GPUs working together, to specialized chips designed specifically for mining. In order to successfully mine most modern cryptocurrencies, you'll need to spend top dollars on hardware as well as footing the substantial electricity bill that having it running 24/7 will generate. In fact, most miners spend the vast majority of their mining income on covering the costs of running their equipment. Now that the Bitcoin boom is thoroughly underway, certain companies and groups have started putting serious money behind it, with

large warehouses full of floor-to-ceiling racks of expensive graphics cards, doing nothing but trying to mine new units of Bitcoin, Litecoin, Ether and others.

With the increasing number of websites, there's a direct correlation to a growth in cloud system infrastructure services. With these statistics, Endereum aims to maximize on this growth by offering a storage platform that's fast, secure, and cost efficient. Decentralized File Storage System (DFSS) is a distributed file system which synthesizes successful ideas from previous peer-to-peer systems, including DHTs, BitTorrent, Git, and SFS. The contribution of DFFS is simplifying, evolving, and connecting proven techniques into a single cohesive system, greater than the sum of its parts. DFSS presents a new platform for writing and deploying applications, and a new system for distributing and versioning large data. DFSS could even evolve the web itself. DFSS is peer-to-peer; no nodes are privileged. DFSS nodes store DFSS objects in local storage. Nodes connect to each other and transfer objects. These objects represent files and other data structures. The DFSS Protocol is divided into a stack of sub-protocols responsible for different functionality.

The illustration given above is a fine example of a VPC accessing a DFFS file system with three availability zones, with each one equipped with one mount target. You can access the mount target that is present within the same availability zone. By using a DFFS file system on the on premise server, data can be migrated to the decentralized cloud server. Consumer can also have the benefit of bursting which can allow them to move data from the on premise server to the DFFS, analyze it and then store it again in the permanent file system.

3.1. Microservice Decoupling

Monolith systems become too gigantic to work with and many enterprises are attracted towards breaking them into sizable portion or microservice-based architectural style which may be easier to work with, but may require some effort on the company's part to transition into. Most companies start with simpler services and then move onto the migration of services with vertical capabilities that possess an ability to pose an atomic improvement to a business and the all-inclusive architecture that can bear subsequent and frequent changes. Migration of monolith systems to a microservice ecosystem is a profound journey for anyone who aspire to accelerate their scale of acceleration, pace of change and reducing the cost of operations and

transitional overhead costs. It is essential for all those who want to expand their team while enabling each personnel to work independently and in parallel to each other while delivering value.

Moving on from monolith systems can also enable companies to constantly experiment with the core capabilities of their businesses and producing value-based services rapidly while escaping the bounds of high costs that are usually accompanied with transitioning from monolith systems. It is essential to ascertain which microservices to decouple and to find out the best way for incremental migration. These are some of the architectural and structural challenges that can pose a great challenge for companies, who are looking to decompose monolith systems to an advanced microservice ecosystem. Microservice ecosystems comprises of services that each independently represent a separate business capability. A business capability is basically what a business is doing in its particular domain to perform its responsibilities and fulfill its objectives.

Each microservice represent and API that is used by developers in independent lifecycles while they test, build and release the microservices from a business independently. They can enforce the organizational structure that represents the microservice ecosystem in autonomous teams which are each tasked with maintaining one or several services. The most straightforward way is to employ the multi-tier online application for retail technique that can cohesively bind business logic, data layer and couples user interfacing. Developers and operational experts can build the infrastructure API management systems and the simultaneous delivery pipelines that can be decomposed and can be transformed into something new.

Most direct way to transitioning into microservice ecosystems is to target applications that don't require much modifications and are almost decoupled from the monolith systems but not utilizing its data stores. Simple edge services can be decoupled first and the services that are deeply embedded in the monolith systems are targeted afterwards. The next step is to minimize the dependency of the newly independent system on the monolith systems by building capabilities into the new systems so that it can redirect dependencies in a reverse fashion. Another important step is for developers to decide the order in which they can decouple services. However, the developers' main task is to ensure that the decoupled capabilities are released independently.

A monolith system comprises of tightly-wounded layers and multiple systems that should be released together and possess inflexible interdependencies. The decoupling starts with developers extracting user facing characteristics and other facade services that can help build developer-friendly and modern UIs and APIs, while the data is safely stored in the storage system. The move out strategy is to decouple core capabilities vertically and focus on redirection of front-end applications to newly structured APIs. The delivery teams incorporate data migration strategies, ensuring that all systems under modifications are running constantly.

3.2. Computing and Storage Capacity Sharing

In an ideal world, you would be able to harness the overall unused computing capacity of your company's workstations, servers, phones and even IoT devices and use it for the creation of a supercomputer without really paying the expense for it. That is the basic concept behind Endereum's distributed storage and serverless computing. Our distributed computing platforms and decentralized serverless platforms will produce enough joint computing power and storage capacity to create a mesh supercomputer capable of performing serial-based algorithms based on machine learning criteria and will be able to perform huge parallel supercomputing jobs on edge networks that are constantly producing machine data. And all of this can be attained without paying the additional expenses of a supercomputer and its infrastructure. Endereum recognized the potential of the blockless technology of the distributed storage capacity and computing.

We are using blockchain technology where the code is cryptographically hashed, mined and signed to a specific block and inserted into the database. The most practical and fast technology that produces favorable results is quite similar to IOTA that currently uses DAG or directed acrylic graph for storing data transactions. The main benefit is that you can track the code anytime and trace it to the branch of its origination which is provided with time stamps of each transaction. This self-organizing network is based on the nanocore technology with complicated encryptions that use Interplanetary File System (IPFS) top compute the overall idle computing and storage capacity of decentralized and serverless supercomputers.

This is especially advantageous for clients who require gigantic IoT microservice ecosystems, deep learning algorithms and sophisticated machine learning solutions that can be deployed in each domain with additional bandwidth to cater to the needs of the enterprise. More and more

companies are demand additional capacity and computing power at their disposal and blockchain is able to meet the specialized requirements needed for product simulation, 3D rendering, deep learning and processing huge volumes of data as well as High Performance Computing which compress time with exponential increase in computing power. Endereum's distributed network can find the solution for signal collision, network congestion, round-trip latency issues and overcoming geographical distances. Real time computing is also a targeted issue.

Distributed ledgers can be managed by smart contracts and blockchain which can lead to the creation of a shared economy that provide idle computing and storage capacity to anyone with a mind to make a side income. The blockchain technology's peer-to-peer temperament can reduce the gap between the data generation and computation thus reducing obstructive round-trips to the cloud servers. Endereum's blockchain has the potential to produce an impactful market application that solves the problems of joining buyers and sellers and allow them to pay for the computing time using the cryptocurrency without involving any intermediary. Blockchain in a decentralized infrastructure makes a huge difference as it brings the consumers and the producers closer, while improving speed and requirements in costs and resources, opening up doors to new possibilities where the previous technologies have succumbed to failure.

3.3. Decentralized Task Scheduling Design

A decentralized task scheduler which is fault-tolerant and horizontally scalable is a fine application of serverless computing. However, as it is time-based and requires horizontal scalability, it makes the job a tad bit challenging. A task scheduling service is used by a company to schedule any request that needs to be processed in the future. The decentralized serverless computing allows the event to register in the scheduler, while suspending the request that is currently running. After the arrival of the stipulated time, the requesting mechanism is promptly notified by the scheduler to resume the processing for suspended requests.

A decentralized task scheduler can have a huge impact on the company's time-sensitive tasks, thus making them easier to target, time-stamped, stored on the serverless cloud and then processed when the stipulated time arrives. Other benefits of the decentralized task scheduler includes timing out asynchronous response bus or requests by enlisting the help of the stateless environment and micro-service paradigm, which ensures that

requests are not lost and that they can be tracked at all times by scheduling a time-out triggered by SLA. A decentralized task scheduler also ensures that the payload for retry of failed requests can be resent to an event scheduler, where it is retried at a later date depending on the client's instructions.

A decentralized task scheduling design can help organize the price related triggers and instances that are tasked with keeping the product at a specific competitive price value. Triggering price modifications, if done manually, can be a complicated task prone to errors and may not work with time-sensitive tasks. A decentralized scheduler can setup price changes as promotions for a later date that can be triggered by the decentralized event scheduler at the specified time thus saving the price-synchronization done manually before, which can keep track of all suspended requests. With a micro-batching design and decentralized architecture the events are bunched together in one window and then stored in partitions in the serverless cloud database.

4.0. MARKET RESEARCH

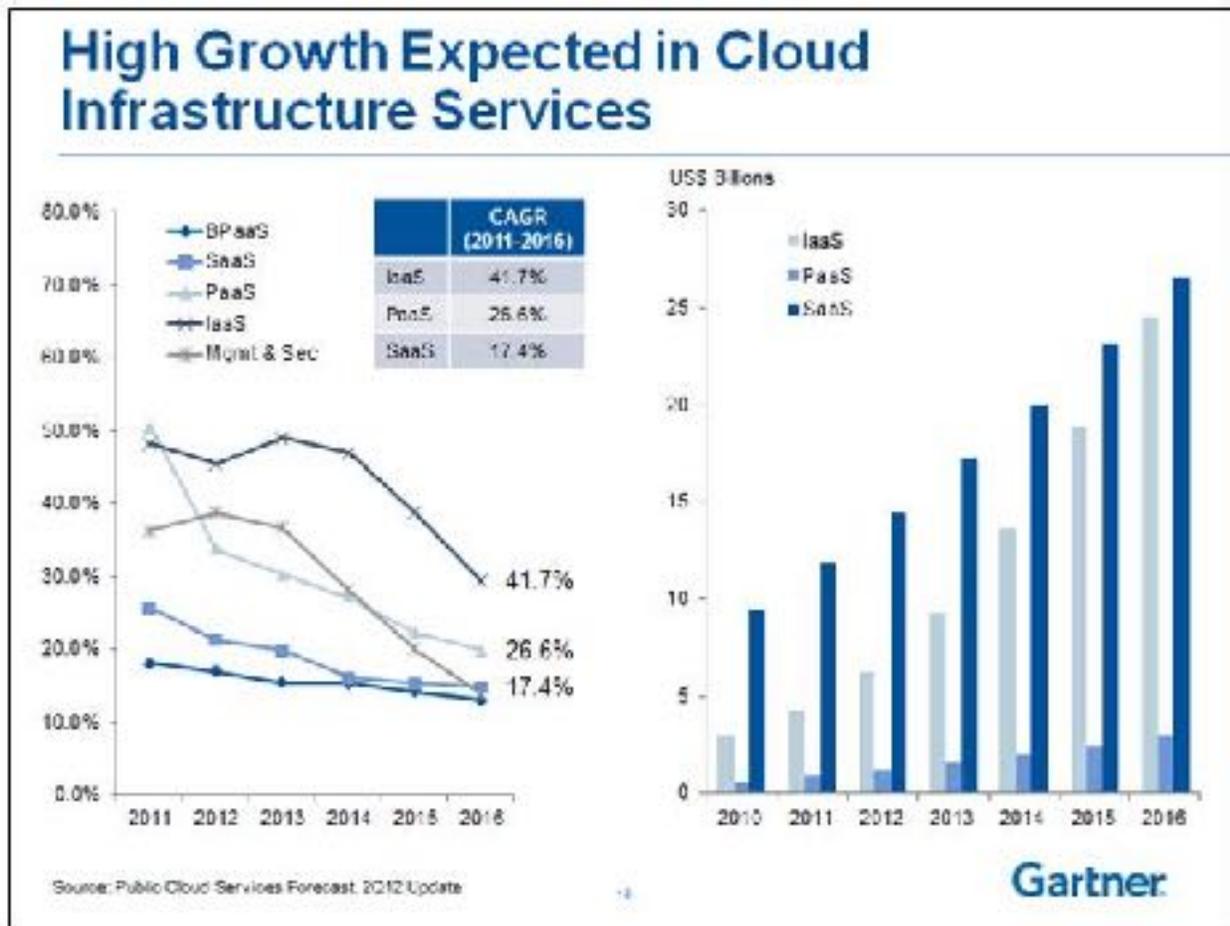
Endereum is presenting the world's first serverless cloud computing platform with a technologically inclusive implementation of a commercial blockchain migration, which is all about a shared network and cost-efficient cloud services and resources. This is bound to create a strong market domain for the company with a loyal user base and is projected to build over more than 100 million nodes in less than 5 years.

According to the Business Wire, "The Function-as-a-Service (FaaS) market size is estimated to grow from USD 1.88 billion in 2016 to USD 7.72 billion by 2021, at a Compound Annual Growth Rate (CAGR) of 32.7% owing to growing number of users adopting FaaS due to their easy deployment and execution ability". We have considered the usage of an international technical team to implement an advanced system of passed-through economy, which can be consumed to achieve a high powered DEF chain. Our serverless computing is the next step into the realm of machines learning, real-time decision making and intelligence as well as serverless computing which will redefine the next generation of network infrastructure. Endereum plans to create a large scale, fast system with a discrete and high deployment rate and the tendency to tightly integrate the shared networking system. Our serverless platform has the power and the ability to transform into such system thus evolving into a commercial success.

MarketsandMarkets™ published a report recently called *Serverless Architecture Market by Service type (Automation and Integration, Monitoring, API Management, Security, Support & Maintenance, and Training & Consulting), Deployment Model, Organization Size, Verticals, and Region - Global Forecast to 2023*, which clearly states that the market size for a serverless cloud computing is estimated to be \$4.25 billion in 2018 and is expected to reach up to \$ 14.93 billion in 5 years with a Compound Annual Growth Rate of 28.6%. The main factor of this is the automation and the integration services and the elimination of managed servers, which has vastly decreased infrastructure costs and has helped greatly in easing execution and deployment, management and the transformation of DevOps to the serverless platforms and the proliferation of the infrastructure of microservices related to serverless cloud computing.

	2017	2018	2019	2020	2021
Cloud Business Process Services (BPaaS)	42.6	46.4	50.1	54.1	58.4
Cloud Application Infrastructure Services (PaaS)	11.9	15.0	18.6	22.7	27.3
Cloud Application Services (SaaS)	80.2	73.6	87.2	101.9	117.1
Cloud Management and Security Services	8.7	10.0	12.1	14.1	16.1
Cloud System Infrastructure Services (IaaS)	30.0	30.8	32.9	37.1	43.5
Total Market	153.5	186.4	221.1	260.2	302.5

The automation and integration services are estimated to take up the largest portion of the market share in 2018 with North America expected to occupy the largest share of it being the most technologically advanced nations, which are commercially strong enough to support the enormous weight of the heavy growth of globalization of cloud. Standard regulations, a presence of a large volume of enterprises and an advanced IT infrastructure allows North America to become a key top player in this field.



Gartner Inc.'s David Cappuccio [predicted](#) that more than 80% of the traditional data centers will be closed by 2025 as compared to just 10% today. Uptime Institute LLC however predicted that 70% of the commutative data center capacity will be reduced down to 76%. With IDC reporting that more than 80% of cloud users have already moved to public cloud platforms.

According to the Market Business Insider:

The break-up profiles of the primary participants are explained below:

- By Company: Tier 1 (25%), Tier 2 (35%), and Tier 3 (40%)
- By Designation: Director Level (45%), C-Level (30%), and Others (25%)
- By Region: North America (35%), APAC (30%), Europe (20%), and RoW (15%)

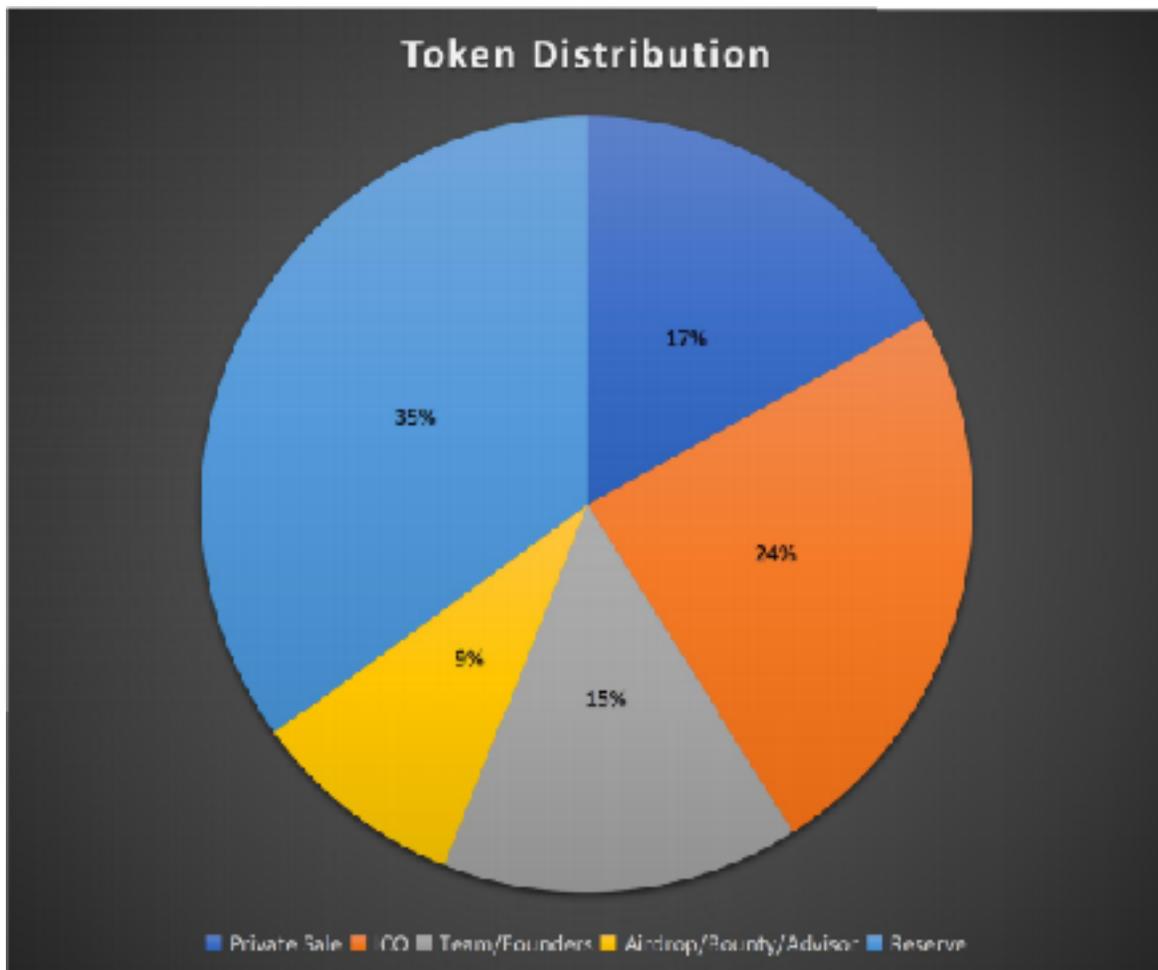
4. Endereum Token

4.1. Token Model

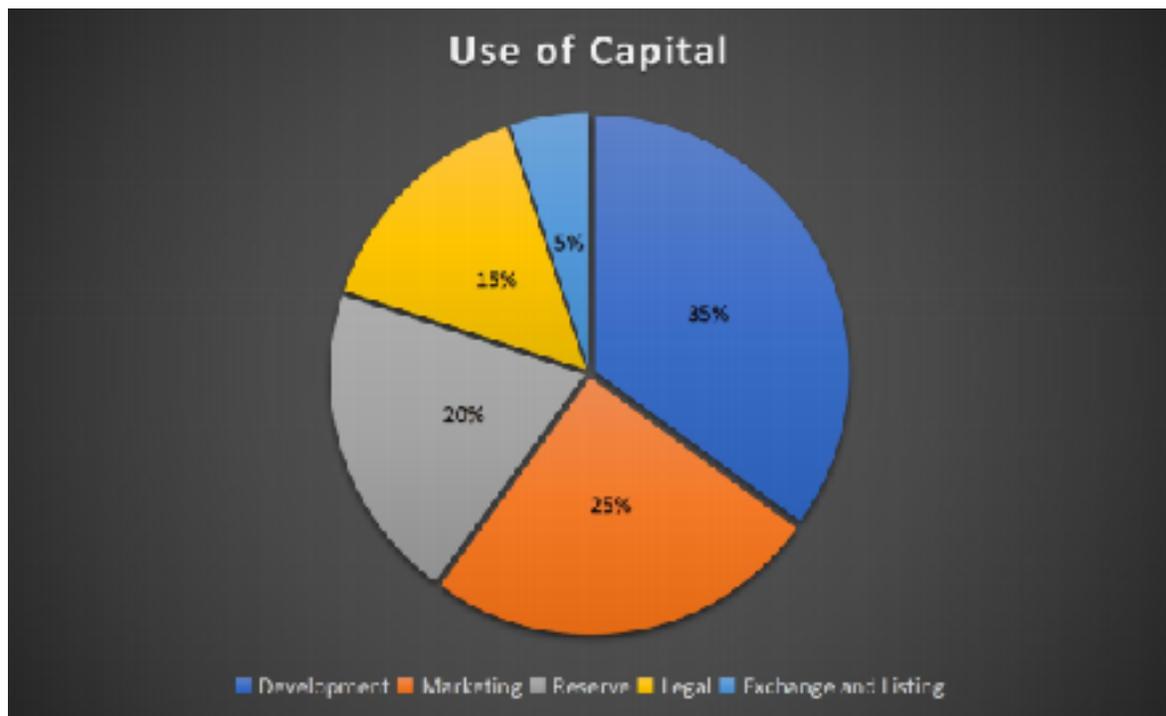
ENDR Model: Exchange on Trade

4.2. Token Sales and Distribution

The chart below outlines the distribution of the 500 million ENDR tokens that will be issued. The tokens held for future release will be leveraged several ways, including for our marketing, and partnership programs.



4.4. Use of Proceeds



Development (35%):

This will cover all R&D, development, security and manufacturing costs for the Endereum platform. We plan to engage the community and find the best suitable and motivated candidates for the development of our platform. Other expenses include design, development of smart contracts, cryptographic mechanisms, apps and interfaces, APIs, etc.

Marketing (25%):

These costs will be for the acquisition of new users on the platform. We want both regional and institutional users on our platform, so marketing would be a key aspect to our ongoing budget spending plan. To achieve this goal, we will run a variety of both online and traditional marketing techniques to push our outreach amongst the world.

Operations / Reserve (20%):

These costs include salaries of all Endereum employees, office expenses, call center expenses, travels expenses, recruiting expenses, non-capitalized research & development expenses, utility expenses, etc. All of these expenses can be considered as day to day costs necessary for the Endereum platform to function to the best of its ability.

Legal (15%):

These costs include all legal expenses associated with registration, expansion and compliance of the Endereum platform in different countries and continents around the globe.

Exchange and Listing (5%):

These costs include any unplanned expenses that come up during the development or implementation process.

5.0 TEAM

5.1 CORE TEAM

Our development and security team are working for or have worked for the Toronto, Montreal, and Boston stock exchanges, and various financial services firms. By building a team with extensive security experience in traditional financial markets, combined with foremost experts in blockchain and cryptocurrency development, Endereum has the opportunity to revolutionize the storage industry by providing innovative solutions.

Bill Wang



Founder/President

Bill Wang is the founder and president of Endereum. He is a technology enthusiast with a desire to create new products and enhance the consumer experience. Mr. Wang developed his very first app at the age of 16 and since then he has gained experiences in an array of different technological fields. He founded and currently spearheads two of his own companies; Smoke & Ko and Endereum.

Mr. Wang is an inventor and creator that has two granted patents and five pending patents. He designed the first game app called "Pick It" which can be downloaded on the Google Play store for free. One of his main projects for 2017 and 2018 is his vape project (Smoke & Ko.) Mr. Wang changed the way that vape coils function to increase lifespan and decrease future cost. He added key features to the product such as Bluetooth capability, the ability to control nicotine content and many more.

He later designed a 3D HUD system that can be used to display important driving information. Using similar technology, he also invented a 3D hologram for MRI, which takes all the layers from the MRI scan and combines it into a hologram for better comprehensive purposes. Both of these 3D systems are part of separate projects that are both patent pending.

Hellen Ma



Co-founder/CEO

Hellen Ma CFO of Endereum has more than 18 years of experience working in different sectors of corporation like Cflaying High Inc, Cflaying Hingh Imports and Exports Inc, Blue

Spa Skin product, Endereum Blockchain. She is also the co-founder of Blue Spa Skin Product Company. It is noted that Blue Spa Skin went to IPO at Hong Kong Stock Market in 1999. She has graduated from Lanzhou University with a degree in biology. She also comes on our prestigious board with a vast experience of working with countries like Canada, US, Brazil, Japan, Australia and China. Throughout her career, Hellen has proved her mettle as a successful business woman.

Aryan Nava



Chief Technical Officer

Aryan Nava Founder of Blockchain Mind Inc. He is a true IT entrepreneur with experience of Hardware / Software development, Training. He brings in 18 plus years of experience for corporations like Blockchain Mind, Toronto Stock Exchange, Canadian Depository for Securities, TSX Venture, TSX Trust, Economical Insurance, Extendicare, Direct Energy and E-Health Ontario. He has been involved with Blockchain technology since 2016 while he was working with Ethereum Co-Founder Anthony Diorio at TSX.

Blockchain Mind headed by him has successfully developed hardware wallet prototype and backed my Venture Capitalist to go mainstream. Aryan and Team is into development of ICO platform for fund raising which contain following features (Buy Tokens, Dashboard, AI powered KYC verification, User Management, white paper, ICO websites, tokenomics and smart contracts) for several companies. Blockchain Mind developed AML/KYC automated process for leading crypto exchange provide network/security/auditing services to host smart contracts, code audits and monitoring to make sure that ICO services can run smoothly.

Additionally, Aryan has conducted training for over 100 managers and executives of large corporations on Blockchain technology. Besides, he has involved in developing decentralized crypto exchange www.linkcoin.pro and raising over \$10 Million for Initial Coin Offerings. Currently working as Chief Technology Officer for EzExchange www.ezexchange.com

Michael Caravetta



Chief Infrastructure/Security Officer

Michael brings in about 37 plus years of experience in the IT sector, he brings extensive knowledge of Network Infrastructure, Network Security, VOIP and IT Management.

Michael brings his experience with corporations like Toronto Stock Exchange, Canadian Depository for Securities, TSX Venture Exchange, TSX Trust, Montreal Stock Exchange and Boston Stock Exchange. Michael is currently Co-founder and Chief Technology Officer of a leading blockchain development, security and infrastructure solutions company, Blockchain Mind. At Endereum Michael is in-charge of building Endereum platform.

Shachindra Kumar



Chief Engineer Product Development

Shachindra brings over 5 years of experience working in the technology sector of corporations like Serendipia, Blockchain Mind, EZExchange, Blockchain Mastery, Revotic Engineering, & Wipro. He brings in extensive knowledge of Blockchain Technology, IoT, & Software Development. He has hosted several training sessions on Blockchain Technology. Shachin is vastly experienced in professional speaking and training on computer vision technologies, Python, Raspberry Pi, Intel Edison and IoT. At Endereum Shachindra in charge of developing Endereum line of products and services.

Kevin Zhang



Distributed File System Specialist

Kevin Zhang is a master's graduate student in Computer Science from Suny New Paltz. He has more than 18 years of experience within the information and technology industry. He has gained a great amount of knowledge and skills with the previous companies that he has worked with such as: Solutions Architect at Scotiabank, Team leader/Data scientist, Senior Data Engineer/Architect and Big Data Consultant at Blackberry, and lastly a Senior Analyst at Canadian Institution for Health information. He is the current CTO of a company called I-Future Data. Kevin Zhang is also specialized in the several skills including; Hadoop, Big Data, Data Mining and many more.

Clara Tang



Marketing Manager

Clara Tang brings over excessive experience in market development, Community Management and sales experience. She brings in experience of sales team of a fortune 500 insurance company Pingan. She has been researching and

investing in blockchain projects since 2017

5.2 Global Advisors



Wenyan Qin

Sr. Blockchain Advisor

Wenyan Qin has more than 19 years of experience working in the technology sector of corporation like IBM, BMO Capital Markets, John Hancock financial Services, Manulife Financial, Envestbank co ltd, Raindb Technologies, North America Blockchain Foundation, Canadian Digital Asset Exchange Inc. field and has worked as a General Manager in the Blockchain Division of Envestbank. He is the founder of 3 companies namely, Canadian Digital Asset Exchange Inc., North American Blockchain Foundation and Raindb Technologies Inc. He believes in the concept of innovation and is looking to restructure the traditional financial system.



Hang Wu

Blockchain Advisor

Hang Wu brings experience working in technology sector of corporations like Concentrix, FUUDY, HPB, University of Toronto, RAN Blockchain. He is also one of the co-founders at Fuddy and RAN Blockchain. He believes in improving the technology to the next level by leveraging multi-layered and modularized automation. RAN mission is to push blockchain beyond the next decade. He created a BCI device using closed biofeedback system and cloud/AI powered algorithm to improve the mental state by 20% or more. He is currently working on building the cheapest wearable to program wetware.



Daniel Carrasco

Fin-tech Advisor

Daniel brings over 20 years of experience in the information technology and consulting industry, delivering successful business management, professional services and information technology solutions for several Fortune 100 companies in North America, Latin America, Europe and Africa. He has brought innovation and expertise to multi-million-dollar projects and programs with several international

firms. Daniel is also Founder, President and CEO of XSIUM, an independent venture capital and private equity holding company. His firm owns capital interests in various companies and subsidiaries in the technology, finance, energy, agritech, mining, and services industries. He is determined to drive operational and business excellence, and to adopt and embrace creativity through the use of technology while changing the world we live in, one solution at a time.



Milt Mohabir

Storage Advisor

Milt Mohabir has a vast array of experiences in I.T. infrastructure from planning and design to implementation of new technologies and management methodologies. He has over 15+ years of experience in the I.T industry. He also possesses excellent communication and interpersonal skills with clients, colleagues and vendors on all levels. He is a storage engineer for the TMX Group and has worked as a storage consultant and engineer for companies such as Hitachi, RBC, BMO, Teranet & Telus.



Phillip Robinson

Storage Advisor

Philip Robinson is a highly accomplished and strategic Senior Project Manager with excellent interpersonal skills who builds and maintains strong teams and alliances. For the past 20 years, he has managed complex projects aligning business goals with innovative technology solutions in the financial industry. He has successfully deployed and delivered numerous high-quality enterprise infrastructure applications for a diverse set of clients including the Toronto Stock Exchange. He is an expert at system migration and drives continuous improvement initiatives in rapidly evolving environments. Most importantly, he is able to see a project through its entire life cycle with engaged and supportive leadership, focused planning and strategic analysis, risk management, and strong communication and feedback processes.



Amit Sharma

Payments Advisor

A High-Performance IT Leader and Change Agent certified in Lean and Agile methodologies with a proven track record of

results in both execution and delivery of strategic projects/programs in the banking and consulting space. Highly skilled at advising, articulating, and collaborating with partners to drive outcomes. Showcases and fosters Integrity, critical thinking, and innovative thinking to accelerate opportunities and solutions.

Expertly versed in specific skills needed to communicate to executives and leaders with a strong acumen on articulating existing and emerging technologies in banking. Contributed as a key member to the overall success of several multi-million-dollar transformational programs over the last 10+ years.

Ken Jinkun Xiao



Business Operations Advisor

Ken is experienced in leading large complicated regulatory and business initiatives, such as Basel, CCAR and IFRS 9. He was leading the modelling stream in large assurance projects for one of the largest banks in Canada for their first-time adoption of IFRS 9. Also, he contributes to different assurance and advisory projects related with control design and testing, model governance and validation, and services for three lines-of-defences for the banking clients of a range of sizes. Ken is familiar with business operations within different lines of business in the banking industry, including retail and commercial banking, wholesale banking and capital market, and provide strategical advices for the banking clients. Ken recently expanded his services to blockchain and cryptocurrency services, advising a number of clients on their compliance and business operation.

6. LEGAL CONSIDERATIONS

ENDR tokens confer no voting rights, ownership of intellectual property, transfer of ownership upon company sale, control of company assets, or any decision-making ability regarding the ENDEREUM platform or its operations. ENDR tokens are not in any way, either directly or indirectly, considered to be securities. The ENDR token is a security token, not a Security, bond or share token which is meant to be used on the ENDEREUM Platform once the platform is launched. ENDR tokens are sold as a security token.

The user acknowledges, understands, and agrees that ENDR tokens are not securities and are not registered with any government entity or regulator as a security, and shall not be considered as such.

6.1. Overview of Initial Sale of ENDR

The ENDEREUM Team will produce a quantity of ENDR in a pre-sale event referred to as the initial sale, to be conducted on its web site at <https://www.endereum.com> ("the initial sale"). Investors in the initial sale will acquire ENDR in exchange for BTC, ETH, and Fiat money at the USD value of each investment at the time of investment. Investors of ENDR in the initial sale will be granted user accounts on the website that will enable them to claim their purchase at the end of the initial sale. All ENDR presold this way will be created on the Ethereum networks after the end of the initial sale, although there are no guarantees that this will occur within a given timeframe. ENDR purchased with ETH will be created on the Ethereum blockchain. The ENDEREUM Team will allocate the purchased ENDR to the corresponding user account on the web site, delivering it to their control.

6.2. ENDR Pricing

Based on the recent performance of other similar blockchain projects, ENDEREUM management has determined that this initial sale shall be divided and sold at decreasing discount rates as the sale proceeds. Full details about the various price points will be provided in a timely manner to investors in the initial sale and will be available on the website at the time of purchase. Investors of ENDR should expect prices to fluctuate significantly. The information published on the Site cannot guarantee that participants will not lose money, nor maintain a price support (floor), nor maintain their ENDR value relative to their purchase price. ENDR will be priced independently by markets and token exchanges, similar to other cryptocurrencies. There are many direct and indirect external factors and market forces that may

influence the price of ENDR, some or all of which may be outside the control and purview of ENDEREUM Team.

6.3. Disclosure of Purchases

To enable ENDR Investors with information to guide their decision-making process, ENDEREUM Team will disclose in real-time the total proceeds raised in the ENDR initial sale to enable the Investor to develop an understanding of the size of the existing ENDEREUM funding pool at the time of ENDR purchase.

6.4. Purchase of ENDR from the [endereum.com](https://www.endereum.com) Website

The ENDEREUM Team will maintain a store interface to be used to purchase ENDR. The store interface will be available on the ENDEREUM website (<https://www.endereum.com>). Instructions for purchasing ENDR with BTC and other cryptocurrencies using the store interface will be embedded and available for review on the ENDEREUM website during the duration of the initial sale. Failure to follow these instructions may limit, delay, or prevent an Investor from obtaining ENDR.

6.5. Obligation to Determine If Investor Can Purchase ENDR in Investor's Jurisdiction

It is the responsibility of each potential Investor of ENDR to determine if the Investor can legally purchase ENDR in the Investor's jurisdiction. Rules vary across jurisdictions. Consult the appropriate counsel and/or regulatory authorities. The regulatory regime in either Canada and/or the United States governing blockchain technologies, cryptocurrencies, and/or tokens is highly uncertain, and new regulations or policies may materially and adversely affect the development of the ENDEREUM platform and the utility, liquidity, and value of ENDR Tokens. Owing to different regulatory regimes and compliance uncertainty in different jurisdictions and the inability of citizens of certain jurisdictions to open accounts at exchanges located anywhere in the world, the liquidity of ENDR may materially vary from one jurisdiction to another, and this may generate significant price discrepancies

6.6. Acceptance of Terms and Conditions of the ENDEREUM Sale

As a first step in the purchase process, ENDEREUM Team will present the Investor with these Terms, and any other associated documents. By placing an order to buy ENDR, the Investor: (i) consents and agrees to the Terms;

(ii) represents and warrants that the Investor is legally permitted to purchase ENDR in the Investor's jurisdiction; (iii) represents and warrants that the Investor is of a sufficient age to legally purchase ENDR or has received permission from a legal guardian who has reviewed and agreed to these Terms; (iv) represents and warrants that the Investor will take sole responsibility for any restrictions and risks associated with the purchase of ENDR as outlined below; and (v) represents and warrants that the Investor has an understanding of the usage and intricacies of cryptographic tokens, including BTC, and blockchain-based software systems.

6.7. Receipt of ENDR and the Purchase Email

As part of the purchase process, and in order to purchase ENDR, an Investor must provide an email address (the "Purchase Email"). The Purchase Email will be used to email the Investor a notice of the creation of the Investor's account on its website. By purchasing ENDR, and to the extent permitted by applicable law, the Investor agrees not to hold any of the ENDEREUM Team Parties liable for any losses or any special, incidental, or consequential damages arising out of, or in any way connected to, Investor's failure to secure their account.

6.8. ENDR Will Only Be Available for Sale on the ENDEREUM Website

The ENDEREUM Team will only sell ENDR through the ENDEREUM website, available at <https://www.endereum.com>. To the extent that any third-party website or service offers ENDR for sale during the initial sale or facilitates the sale or transfer of ENDR in any way during the initial sale, such third-party websites or services are not sanctioned by ENDEREUM Team or its affiliates and have no relationship in any way with the ENDEREUM Team Parties. As a result, ENDEREUM Team prohibits the use of these third-party websites or services for the purchase of ENDR prior to the end of the initial sale.

6.9. Fraudulent Attempts to Double Spend BTC

ENDEREUM Team will monitor all potential transactions for fraudulent attempts to double spend

BTC. Any identified double spend of BTC will result in no ENDR being delivered to the associated

Investor.

6.10. Certain Risks Associated with the Purchase of ENDR

The purchase of ENDR carries with it significant risk. Prior to purchasing ENDR, the Investor should carefully consider the below risks and, to the extent necessary, consult a lawyer, accountant, and/or tax professionals before determining whether to purchase ENDR.

- i. It is possible that the value of BTC will drop significantly in the future, depriving ENDEREUM Team of sufficient resources to continue to operate.
- ii. ENDR will be stored in a wallet, which can only be accessed with a password selected by the Investor. If an Investor of ENDR does not maintain an accurate record of their password, this may lead to the loss of ENDR. As a result, Investors must safely store their password in one or more backup locations that are well separated from the primary location. In order to access one's ENDR, the password that the Investor entered is required; loss of this may lead to the loss of an Investor's ENDR.
- iii. Any third party that gains access to the Investor's Purchase Email may be able to gain access to the Investor's ENDR. The Investor must take care not to respond to any inquiry regarding their purchase of ENDR, including but not limited to, email requests purportedly coming from the www.ENDEREUM.com website or a similar-looking domain.
- iv. Cryptocurrencies have been the subject of regulatory scrutiny by various regulatory bodies around the globe. The ENDEREUM Platform and ENDEREUM Team could be impacted by one or more regulatory inquiries or regulatory action, which could impede or limit the ability to continue to develop the ENDEREUM Platform.
- v. It is possible that the ENDEREUM Platform will not be used by a large number of external businesses, individuals, and other organizations and that there will be limited public interest in the use of peer-to-peer currencies for the use of crypto indexes. Such a lack of interest could impact the development of the ENDEREUM Platform. ENDEREUM Team cannot predict the success of its own marketing efforts nor the efforts of other third parties. There is no guarantee of revenues or profits resulting from the marketing activities of the ENDEREUM Team.

- vi. vi. The Investor recognizes that the ENDEREUM Platform is currently under development and may undergo significant changes before release. The Investor acknowledges that any expectations regarding the form and functionality of the ENDEREUM Platform held by the Investor may not be met upon release of the ENDEREUM Platform, for any number of reasons including a change in the design and implementation plans and execution of the implementation of the ENDEREUM Platform.
- vii. vii. The Investor understands that while the ENDEREUM Team will make reasonable efforts to complete the development, it is possible that an official completed version of the ENDEREUM Platform may not be released and there may never be an operational or functional ENDEREUM Platform.
- viii. Hackers or other groups or organizations may attempt to steal the BTC and cryptocurrency revenue from the initial sale, thus potentially impacting the ability of ENDEREUM Team to promote the ENDEREUM Platform. To account for this risk, ENDEREUM Team has and will continue to implement comprehensive security precautions to safeguard the BTC and cryptocurrency obtained from the sale of ENDR. Multi-factor security measures will be taken to protect cryptocurrency and ENDR including but not limited to physical elements, multi-signature keys, splitting of funds, hot/cold wallet partitioning and diversification. Moreover, regular security audits of hot and cold wallets will be conducted by internal and external teams.
- ix. Advances in code cracking, or technical advances such as the development of quantum computers, could present risks to cryptocurrencies and the ENDEREUM Platform, which could result in the theft or loss of ENDR. To the extent possible, ENDEREUM intends to update the protocol underlying the ENDEREUM Platform to account for any advances in cryptography and to incorporate additional security measures but cannot it cannot predict the future of cryptography or the success of any future security updates.
- x. As with other cryptocurrencies, the blockchain used for the ENDEREUM Platform is susceptible to mining attacks, including but not limited to double-spend attacks, majority mining power attacks, "selfish-mining" attacks, and race condition attacks. Any successful

attacks present a risk to the ENDEREUM Platform and expected proper payment operations.

- xi. The loss or destruction of a private key by ENDEREUM Team used to access may be irreversible. ENDEREUM Team's loss of access to its private keys or a data loss relating to ENDEREUM Team could adversely affect the value of ENDEREUM Platform.
- xii. ENDEREUM Platform is a new product, thus contributing to price volatility that could adversely affect the value of ENDR. The factors affecting the further development of the digital assets industry, as well as the ENDEREUM Platform, include:
 - a. continued worldwide growth in the adoption and use of ENDR and other digital assets;
 - b. government and quasi-government regulation of ENDR and other digital assets and their use, or restrictions on or regulation of access to and operation of the ENDEREUM Platform or similar digital asset systems;
 - c. the maintenance and development of the software of the ENDEREUM Platform;
 - d. changes in consumer demographics and public tastes and preferences;
 - e. the availability and popularity of other similar products; and
 - f. general economic conditions and the regulatory environment relating to the ENDEREUM Platform and digital assets. xiii.
- xiii. Intellectual property rights claims may adversely affect the operation of the ENDEREUM Platform. Third parties may assert intellectual property claims relating to the holding and transfer of digital assets and their source code. Regardless of the merit of any intellectual property or other legal action, any threatened action that reduces confidence in the ENDEREUM Platform's long-term viability or the ability of end-users to hold and transfer ENDR may adversely affect the value of ENDR. Additionally, a meritorious intellectual property claim could prevent end-users from accessing the ENDEREUM Platform or holding or transferring their ENDR.
- xiv. Cryptocurrency exchanges on which ENDR may trade may be relatively new and largely unregulated and may therefore be more

- exposed to fraud and failure than established, regulated exchanges for other products. To the extent that the cryptocurrency exchanges representing a substantial portion of the volume in ENDR trading are involved in fraud or experience security failures or other operational issues, such cryptocurrency exchange failures may result in a reduction in the price and can materially and adversely affect the value of ENDR. A lack of stability or liquidity in the cryptocurrency exchanges and the closure or temporary shutdown of cryptocurrency exchanges due to fraud, business failure, hackers or malware, or government-mandated regulation may reduce confidence in the ENDEREUM Platform and result in greater volatility in the price.
- xv. Political or economic crises may motivate large-scale sales of ENDR, which could result in a reduction in the price and adversely affect the value of ENDR. Digital assets such as ENDR, which are relatively new, are subject to supply and demand forces based upon the desirability of an alternative, decentralized means of transacting, and it is unclear how such supply and demand will be impacted by geopolitical events. Large volume sales of ENDR would result in a reduction in its price.
 - xvi. It is possible that a digital asset other than ENDR could have features that make it more desirable to a material portion of the digital asset user base, resulting in a reduction in demand for ENDR, which could have a negative impact on the use and price of ENDR. It is possible that a comparable product could become materially popular due to either a perceived or exposed shortcoming of the ENDEREUM Platform that is not immediately addressed by the ENDEREUM Team, or a perceived advantage of a comparable product that includes features not incorporated into the ENDEREUM Platform. If this product obtains significant market share, it could have a negative impact on the demand for, and price of, ENDR.
 - xvii. ENDR transactions are irrevocable and stolen or incorrectly transferred ENDR may be irretrievable. As a result, any incorrectly executed ENDR transactions could materially and adversely affect the value of ENDR. Cryptocurrency transactions are not, from an administrative perspective, reversible without the consent and active participation of the recipient of the transaction or, in theory,

control or consent of a majority of the processing power on the host blockchain platform. Once a transaction has been verified and recorded in a block that is added to the blockchain, an incorrect transfer of ENDR or a theft of ENDR generally will not be reversible and there may be no compensation for any such transfer or theft. Such loss could materially and adversely affect the value of ENDR.

- xviii. Some ENDR tokens may be issued on the Ethereum blockchain. As such, any malfunction or unexpected functioning of the Ethereum protocol may impact the Investor's ability to transfer or securely hold ENDR. Such impact could materially and adversely affect the value of ENDR.
- xix. It is possible that, due to any number of reasons, including without limitation the failure of business relationships or marketing strategies, that the ENDEREUM Platform and all subsequent marketing from the money raised from the sale of ENDR may fail to achieve success.

6.11. All Purchases of ENDR Are Non-Refundable

ALL PURCHASES OF ENDR ARE FINAL. PURCHASES OF ENDR ARE NON-REFUNDABLE. BY PURCHASING ENDR, THE INVESTOR ACKNOWLEDGES THAT NEITHER ENDEREUM TEAM NOR ANY OTHER OF THE ENDEREUM TEAM PARTIES ARE REQUIRED TO PROVIDE A REFUND FOR ANY REASON, AND THAT THE INVESTOR WILL NOT RECEIVE MONEY OR OTHER COMPENSATION FOR ANY ENDR THAT IS NOT USED OR REMAINS UNUSED.

6.12. Taxation of ENDR and Taxation Related to the Initial Sale

ENDEREUM Team makes no representations concerning the tax implications of the sale of ENDR or the possession or use of ENDR. The Investor bears the sole responsibility to determine if the purchase of ENDR with BTC or the potential appreciation or depreciation in the value of ENDR over time has tax implications for the Investor in the Investor's home jurisdiction. By purchasing ENDR, and to the extent permitted by law, the Investor agrees not to hold any of the ENDEREUM Team Parties liable for any tax liability associated with or arising from the purchase of ENDR. You are solely responsible for determining what, if any, taxes apply to your ENDR Token transactions. Neither the ENDEREUM Team nor any other party is responsible for determining taxes that apply to ENDR Token transactions.

6.13. Privacy

Although ENDEREUM Team requires that Investors provide an email address, ENDEREUM Team will not publish any identifying information related to ENDR purchases, without the prior written consent of the Investor. The privacy of the Investor is not in any way shared with third-party sources. Investors may be contacted by email by ENDEREUM Team regarding a purchase. Such emails will be informational only. ENDEREUM Team will not request any information from Investors in an email.

6.14. Disclaimer of Warranties

THE INVESTOR EXPRESSLY AGREES THAT THE INVESTOR IS PURCHASING ENDR AT THE INVESTOR'S SOLE RISK AND THAT ENDR IS PROVIDED ON AN "AS IS" BASIS WITHOUT WARRANTIES OF ANY KIND, EITHER EXPRESS OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, WARRANTIES OF TITLE OR IMPLIED WARRANTIES, MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE (EXCEPT ONLY TO THE EXTENT PROHIBITED UNDER APPLICABLE LAW WITH ANY LEGALLY REQUIRED WARRANTY PERIOD TO THE SHORTER OF THIRTY

DAYS FROM FIRST USE OR THE MINIMUM PERIOD REQUIRED). WITHOUT LIMITING THE FOREGOING, NONE OF THE ENDEREUM Team PARTIES WARRANT THAT THE PROCESS FOR PURCHASING ENDR WILL BE UNINTERRUPTED OR ERROR-FREE.

6.15. Limitations Waiver of Liability

THE INVESTOR ACKNOWLEDGES AND AGREES THAT, TO THE FULLEST EXTENT PERMITTED BY ANY APPLICABLE LAW, THE DISCLAIMERS OF LIABILITY CONTAINED HEREIN APPLY TO ANY AND ALL DAMAGES OR INJURY WHATSOEVER CAUSED BY OR RELATED TO USE OF, OR INABILITY TO USE, ENDR

OR THE ENDEREUM PLATFORM UNDER ANY CAUSE OR ACTION WHATSOEVER OF ANY KIND IN ANY JURISDICTION, INCLUDING, WITHOUT LIMITATION, ACTIONS FOR BREACH OF WARRANTY, BREACH OF CONTRACT OR TORT (INCLUDING NEGLIGENCE) AND THAT NONE OF THE ENDEREUM TEAM PARTIES

SHALL BE LIABLE FOR ANY INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY OR CONSEQUENTIAL DAMAGES,

INCLUDING FOR LOSS OF PROFITS, GOODWILL OR DATA, IN ANY WAY WHATSOEVER ARISING OUT OF THE USE OF, OR INABILITY TO USE, OR PURCHASE OF, OR INABILITY TO PURCHASE, ENDR. THE INVESTOR FURTHER SPECIFICALLY ACKNOWLEDGES THAT ENDEREUM TEAM PARTIES ARE NOT LIABLE FOR THE CONDUCT OF THIRD PARTIES, INCLUDING OTHER INVESTORS OF ENDR, AND THAT THE RISK OF PURCHASING ENDR RESTS ENTIRELY WITH THE INVESTOR. TO THE EXTENT PERMISSIBLE UNDER APPLICABLE LAWS, UNDER NO CIRCUMSTANCES WILL ANY OF THE ENDEREUM TEAM PARTIES BE LIABLE TO ANY INVESTOR FOR MORE THAN THE AMOUNT THE INVESTOR MAY HAVE PAID TO ENDEREUM TEAM FOR THE PURCHASE OF ENDR. SOME JURISDICTIONS DO NOT ALLOW THE EXCLUSION OF CERTAIN WARRANTIES OR THE LIMITATION OR EXCLUSION OF LIABILITY FOR CERTAIN TYPES OF DAMAGES. THEREFORE, SOME OF THE ABOVE LIMITATIONS IN THIS SECTION AND ELSEWHERE IN THE TERMS MAY NOT APPLY TO AN INVESTOR. IN PARTICULAR, NOTHING IN THESE TERMS SHALL AFFECT THE STATUTORY RIGHTS OF ANY INVESTOR OR EXCLUDE INJURY ARISING FROM ANY WILFUL MISCONDUCT OR FRAUD OF ENDEREUM TEAM.

6.16. Dispute Resolution

a.) ENDEREUM Team and Investor (the "Parties") agree to make good faith efforts to resolve any dispute, controversy or claim arising between them relating to this pre-sale and their respective rights and obligations hereunder arising under this Agreement (a "Dispute"). b) If the Parties, or their designated representatives, are unable to resolve the Dispute within ten (10) business days after referral of the matter to them, the Parties will submit the Dispute for resolution pursuant to paragraph c. of this Section. c) Except with respect to Disputes concerning

(i) the right of either Party to apply to a court of competent jurisdiction for an interim or interlocutory injunction or other provisional remedy to preserve the status quo or prevent irreparable harm or (ii) any Disputes that may arise in connection with a breach of a Party's obligations of confidentiality hereunder, if any Dispute is not resolved pursuant to paragraphs a. and b. above, the Parties will, acting reasonably, agree mutually on the forum for resolution of the Dispute by arbitration as set out in this Section. d) After the completion of the procedures set forth in paragraph b. and agreement by the Parties to enter into binding arbitration in accordance with paragraph c. of this Section, either Party may within thirty (30) calendar days refer the Dispute to arbitration by serving written notice of its intention to arbitrate

the Dispute to the other Party. e) The arbitration will be conducted by a single arbitrator to be mutually agreed to by the Parties within three (3) business days following the date of the referral of the Dispute to arbitration.

6.17. Force Majeure

ENDEREUM Team is not liable for failure to perform solely caused by:

- Unavoidable casualty,
- Delays in delivery of materials,
- Embargoes,
- Government orders,
- Acts of civil or military authorities,
- Acts by common carriers,
- Emergency conditions (including weather conditions), or
- Any similar unforeseen event that renders performance commercially implausible.

If an event of force majeure occurs, the party injured by the other's inability to perform may elect to suspend the Agreement, in whole or part, for the duration of the force majeure circumstances. The party experiencing the force majeure circumstances shall cooperate with and assist the injured party in all reasonable ways to minimize the impact of force majeure on the injured party.

6.18. Complete Agreement

These terms set forth the entire understanding between each Investor and ENDEREUM Team with respect to the purchase and sale of ENDR. For facts relating to the sale and purchase, the Investor agrees to rely only on this document in determining purchase decisions and understands that this document governs the sale of ENDR and supersedes any public statements about the initial sale made by third parties or by ENDEREUM Team or individuals associated with any ENDEREUM Team parties, past and present and during the initial sale. There are no warranties, representations, covenants, or agreements, express or implied, between the parties except those expressly set forth in this Agreement. This Agreement may only be amended by a written document duly executed by the parties.

6.19. Severability

The Investor and ENDEREUM Team agree that if any portion of these Terms is found illegal or unenforceable, in whole or in part, such provision shall, as to such jurisdiction, be ineffective solely to the extent of such determination of invalidity or unenforceability without affecting the validity or enforceability thereof in any other manner or jurisdiction and without affecting the remaining provisions of the Terms, which shall continue to be in full force and effect.

6.20. No Waiver

The failure of ENDEREUM Team to require or enforce strict performance by the Investor of any provision of these Terms or ENDEREUM Team's failure to exercise any right under these agreements shall not be construed as a waiver or relinquishment of ENDEREUM Team's right to assert or rely upon any such provision or right in that or any other instance. The express waiver by ENDEREUM Team of any provision, condition, or requirement of these Terms shall not constitute a waiver of any future obligation to comply with such provision, condition or requirement. Except as expressly and specifically set forth in this these Terms, no representations, statements, consents, waivers, or other acts or omissions by ENDEREUM Team shall be deemed a modification of these Terms nor be legally binding, unless documented in physical writing, hand signed by the Investor and a duly appointed officer, employee, or agent of ENDEREUM Team.

6.21. Updates to the Terms and Conditions of the ENDR Initial Sale

ENDEREUM Team reserves the right, at its sole discretion, to change, modify, add, or remove portions of the Terms at any time during the sale by posting the amended Terms on the ENDEREUM website (<https://www.ENDEREUM.com>). Any Investor will be deemed to have accepted such changes by purchasing ENDR. The Terms may not be otherwise amended except in a signed writing executed by both the Investor and ENDEREUM Team. For purposes of this agreement, "writing" does not include an e-mail message and a signature does not include an electronic signature. If at any point you do not agree to any portion of the then-current version of the Terms, you should not purchase ENDR.

6.22. US Investor Restriction

If an Investor is a citizen, tax resident or green card holder of the United States of America ("US Investor"), he/she shall not participate in the offering.

6.23. Cooperation with Legal Authorities

ENDEREUM Team will cooperate with all law enforcement enquiries, subpoenas, or requests provided they are fully supported and documented by the law in the relevant jurisdictions. ENDEREUM Team will endeavor to publish any legal enquiries upon receipt.