Profile, Design Concept and Work Plan of Elastos

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Elastos - Blockchain Powered Internet,

A guarded, guided, single-process virtual machine which cannot surf the Internet directly,

Operating on a decentralized point-to-point Internet.

In the early days of the 1980s, the DOS operating system only a supported single address space (i.e. a single process). It could not surf the Internet yet, but could be used to write games, office software and almost all local applications. At that time viruses were transmitted through floppy disks and network attacks weren't yet a problem and networks themselves were in their infancy.

Operating systems in the 1990s, such as Linux, supported multiprocesses accompanied by the Internet TCP/IP protocol stack.

Because traditional operating systems were born before the Internet, all operating systems are simply the standalone versions of operating systems with “patches” becoming applications of the operating systems joining together to become the Internet.

The problem was (and still is) in order to communicate, stand-alone operating systems were required to give the green light to all Internet behavior, making the user data and Internet connection completely exposed to safety risks of the various Internets.

Today, a physical PC computer can be powerful enough to support multiple virtual machines at the same time. Most of the OS in the virtual machine is Linux, or lightweight (ultra lightweight) Linux (POSIX) system and still supports multiprocess with access to the Internet.

With virtual Cloud Computing the Internet can easily support multiple virtual machines. However the problems of virus and network attack still remain, and are becoming increasingly serious due to large numbers of virtual machines.

What if the OS of virtual machines returned to a single process, with no floppy disks and direct, unrestricted access to the Internet? The world would be a safer place - “less easy” to transmit viruses or launch network attacks.

It is actually quite easy to operate a single process virtual machine, Linux users don’t directly expose POXIS system call interface in its processes, instead they replace it with a set of similar Java VM which are actually API realized by C/C++, coming with Loader to load specific binary format code and ban creating processes and Internet visiting sockets.

The home catalogue folder of Linux (User ID) serves as a permanent storage. What is more exciting is the synchronization function of built-in virtual machine with personal cloud disk, making the Home catalogue folder serve as cache of the personal cloud disk, and personal cloud disk as a permanent storage. Thus, a modern “personal cloud DOS” is created.

In this “cloud DOS” operating system, the Internet plays a role of providing basic resources like computer buses, hard disk and internal storage. The applications are not entitled to directly call the Internet access interface, and must submit network access demands as specified by the operating system, in this way completing the interactive communications between applications and personal cloud disk storage.

A smartphone or PC can operate dozens of such single process virtual machine at the same time without any pressure, i.e. the number of Linux process operated is equal to that of virtual machine operated. The OS of Elastos is designed against personal cloud storage when the sandbox of the virtual machine operates.

When the APP or service is running in such a virtual machine, we do not know whether the base operating system (OS) of the physical machine is Linux or Windows, nor do we know whether it is running directly on some low-end bare hardware. As the underlying host OS is not known, it is also difficult to implement the spreading of a virus. It is also an unlikely possibility to launch a network attack as the APP cannot access the Internet directly.

We also do not know the distance between the APP and the service running in a virtual machine, - the two may be running on the same PC, or not, they may be running on the same LAN, or they may also be distributed at different ends of the Internet.

The application of dynamic discovery and acceptance of services within a LAN has many new names: fog computing, peripheral computing, edge computing. As a dynamic detecting peripheral services, security risks the brunt of attack, so a virtual machine is used as a sandbox for isolation.

APP and services may be far away on the horizon or just around the corner.

APP and services cannot directly create the process, nor directly access the Internet. So how does the APP create a service, and how to find an unknown service from the distance?

In ancient China, it was improper for men and women to touch each other’s hands in passing objects, it was more common to see messages passed by an intermediary - a matchmaker. In our modern example, to call on or to find another man, the woman would call up a universal unique number (UUID, Universal Unique ID), and the discreet, careful matchmaking operator would get the message through and make the connection.

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*rewrite below\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

If a person can follow the instructions to write 0 or 1 in the grid on a very long, very long grid paper tape, she will wipe 0 and write 1, or wipe 1 and write 0, the pen will move to the left grid, or move to the right. If the speed of erasing and writing, displacement reaches billions of times, tens of billions of times per second, she will be able to complete the so-called “Turing complete” calculation. A little mysterious, but do not think about it, calculating operation on the significance of the Turing machine is very simple.

Do not go computing, the Internet does not count. Compute, Computer, Computing, I'm talking about Compute, neither Computer nor Computing.

The difference is the Turing machine will not be on-line - all that is needed is Internet interconnection between two Turing machines, nothing to do with the APP. Just like two cell phones can dial a number to communicate between two persons, and has nothing do with what they want to say. \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*rewrite above\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

For example, a mobile phone can access the Internet, but the App inside the phone cannot directly access the Internet. The APP can find other services within the phone. Imagine the phone as a virtual phone (a software-defined cell phone), which is also the Elastos Runtime of Elastos. Think of the mobile operator (carrier company) as a matchmaker between the Internet virtual machines, which is also the Elastos Carrier of Elastos.

Elastos is very clear about planning these two things.

Assuming that the operator’s mobile number (UUID) is not given by an operator, the user can pay for the Internet (ELA coin) to allocate their own UUID numbers on-demand, and then pay a little money to produce an Elastos virtual machine on demand. Also make a micro-site (no website IP address) to pay a little money, make a multimedia content or game to pay a little money. These are the user’s own, without any intermediary’s approval. This is the benefit of the blockchain technology.

The basic philosophy of Elastos OS design:

1. Adopt the development mode of three equal-stress languages of C/C++, JAVA, HTML5/JS, its C+ + programming API basically corresponds to Android Java API, to achieve the unified management of cloud , tube, end user;

(2) As a container sandbox (clean room), Elastos OS prohibits any App from directly creating any process, does not allow APPs to directly access to TCP/ IP, isolating any virus transmission route;

(3) Elastos distributed framework (Elastos Framework) on behalf of the APP creates and/or finds the micro-service deployed in the local environment , peripheral appliances or the cloud, automatically generating remote calls and event callbacks, avoiding the possibility of APPs launching a network attack from a third party APP or service.

(4) Use blockchain to confirm the user ID, and then carry out the asset allocation and confirming rights for digital content and Internet equipment (appliances).

(5) The new intelligent (smart) contract runs only on the nodes of the relevant side chain agreed and authorized party, thereby improving the verification efficiency and being compatible with the legal digital currency.

On the premise of possessing their own data forever, Elastos users can select or replace the operator, as well as select or replace the advertising agency. In other words, the decentralized operators are simply the channels of short messages, chat and video, but unable to intercept any end-to-end encrypted information. What is stored in the decentralized public video websites are only GIF dynamic images from media content, authors personal cloud network links and P2P download seeds.

Human society has been improving efficiency from drilling for fire and slash-and-burn to today’s robots and artificial intelligence, we are accelerating exponentially..

But software replication costs nothing, and there are no major differences, namely, difference between workers and peasants, difference between urban areas and rural areas, and difference between mental work and labor work. Each copycat piracy product “takes whatever it needs”, but whether each of them “contributes according to its own ability” is not discussed here. There is no border in the Internet age, no one knows whether there is a cat or dog on the other side of the network, no one discriminates the saint from the crook, and the “state and class” are also eliminated accordingly .

Is this place where there are no three major differences and every one only gets what he needs the Paradise? Taking the blockchain technology as an opportunity, I think that the most fundamental trend of the Internet development in the future is “retroaction”.

In digital currency, such as the Bitcoin and Etherium ecospheres of blockchain technology, there is still no decentralized application that can rival mainstream mobile applications (APP). In other words, in the digital world, “payment in one hand” has become a reality, but “delivery in the other hand” has still not been reached.

Blockchain technology can prove the feasibility of virtual currency and ensure the permanently immutable records of the scarcity of virtual products. Human-made “digital content scarcity” is bound to be the basic technology of the digital economy business society where “individuals own digital assets”.

Elastos - Blockchain Powered Internet，a point-to-point virtual operation network that uses blockchain as a basic agreement platform supporting a stack of single-processes in a virtual machine. In this cyber world, the IDs of all the people, all the websites and all the digital assets are registered in the cloud blockchain, and the world features virus isolation, network order, fair trade and harmonious society.

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[Background of the Elastos design concept]

Some may think of it as simply a technical detail in the development of the existing Internet, but I would say that it is actually the road to the future of Internet development. In February 1999, we thought that the future of OS must be driven by Metadata. <don’t understand exactly> I told my Microsoft fellows, however, then they decided to give up the route of C/C+ + technology. With disappointment, I made up my mind to return China and start a business in 2000.

My reason for never giving up is because of those Elastos engineers who have kept working hard in the past seventeen years. It was their continued work that gave me the strong belief that I was right about the evolution of the Internet eighteen years ago.

Time flies. The Internet has developed so fast that it’s difficult keep up with its direction and fundamental function. Now the Internet is exposing many systemic problems including lack of safety guarantee for Internet of Things (IoT) and peripheral computation. We see it happening, we’re patching it here and there, but we don’t know how to fix it. It's time now for us to slow down and think seriously about it before embarking on the next internet.

Blockchain technology that can confirm and sign ID’s through a decentralized metadata-powered OS to automatically generate network calls, holds hope for an Internet without virus and network attacks.

We’re at the cusp of a revolution. People may not know how the blockchain, metadata or OS systems work, But they know what they want: an Internet with honesty and without virus attacks.

This is not a pipe-dream. It is not a fantasy. The need is there. The demand is there. The system is broken and the technology to fix it is here now. The blockchain in combination with Elastos has the potential to revolutionize our relationship with the Internet and between ourselves. A world of good manners, honesty conscience and benevolence.

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[Elastos work plans]

On the private side, we are building the Elastos open source ecosystem - a blockchain-powered Internet ecosystem.

To run and test the Elastos blockchain, we’ll

- set up a decentralized individual cloud disk based on the Elastos Carrier, and build an Elastos ID general ledger in the Carrier server, including Record User ID, DigitalCapsule ID (micro website ID) and DApp ID, etc.

* Structure Elastos Runtime (C++VM) based on Carrier. (?)
* DApp development will be started at the end of this private set-up activity.
* Later, we will find partners with Internet business models and test shift them into the decentralized ID, where no more user information will kept in the server (decentralized), and allow users to hold their own data and decide how to exchange it by themselves, peer-to-peer.
* After testing with carrier partners, the entire work project will be gradually migrated online within one year after its private testing and refinement.

Open source is not needed but encouraged by DApp. We will build a new type Internet community with honesty and without network attacks.

Programming language and framework are needed for DApp to address and solve some rigid demands. “The application (APP) doesn't use the Internet and the Internet doesn't use the APP (application)” is truly the differentiating and critical feature of Elastos, providing a safer environment. 100 percent open source, the application can neither use the Internet nor create other processes, and all communication is made with end-to-end encryption.

It will take several months to build a basic environment, driven by its real-world application and business model. Only after non-critical testing, confirmation and validation in the "intelligent economic development zone” of the \*Republic Of Conscience will the DApp make money in the new and more secure Internet.

The Republic Of Conscience Sandpile Test Bed for the Elastos system in ConscienceLAND

\*I propose to the team that we use the development of the ‘not-mission-critical” Republic Of Conscience (ConscienceLAND) as one of the experimental test-bed opportunities for Elastos - giving “common” non-technical “Citizens Of Conscience” an opportunity to be willing, benevolent guinea pigs and Beta testers (and even investors) in Elastos.

Encouraging testing within this willing-to-participate-in-something-new group with Global Goals ([www.17plusONE.com](http://www.17plusONE.com)) with a clear purpose to show how robust, benevolent and harmonious the system is in “Real World” of sharks, hacker attacks, viruses, frauds and phishing will be very valuable, manageable and media-worthy. It’s a GOOD STORY, and the best projects have a clear, relatable story which will keep attention on Elastos while it is being developed and before it is actually delivered.

The ecosystem of the Republic Of Conscience (as it relates to Elastos) has a mission to create:

1.) Individual ID, Wallet, APPs, DATA Sovereignty and DATA marketing capacity

2.) Account for and transfer Emotipoints , Caring Currency, Social Credit Rating,

3.) Advanced Blockchain Onramp (adoption)

A.) Short-Term Objective - Mobilize the world to solve the 17 SDGs

B.) Long-Term Objective - Prepare citizens for UBI (Universal Basic Income)