Profile, Design Concept and Work Plan of Elastos

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Elastos - Blockchain Powered Internet,

i.e. a pile of single-process virtual machine which cannot surf the Internet directly,

Operates on a decentralized point-to-point Internet.

At the beginning of 1980, DOS operating system only supported single address space (i.e. single process). It could not surf the Internet, but could be used to write games, office software and almost all local applications. Viruses were transmitted through floppy disk then. There were neither network attack nor network.

Operating system in the 1990s, such as Linux, supported multiprocess, accompanied with Internet TCP/IP protocol stack.

As traditional operating system was born before the Internet, so all operating systems are standalone version of operating systems. While, as a “patch” joining in later, the Internet became an application on the operating system. Stand-alone operating systems gave the green light to all Internet behavior, making the user data and Internet behavior completely exposed to safety risks of various Internet.

Now, a physical PC computer can be strong 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. Except that this framework is widely used at one end of the Internet website currently, which is called Cloud Computing. The problems of virus and network attack still remain, and seem to be increasingly serious due to large amounts of virtual machine.

What if OS of virtual machine returns to single process, no floppy disk and access to the Internet? Simply speaking, it will be less easy to transmit virus or launch network attacks.

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

Home catalogue folder of Linux (User ID) serves as 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 personal cloud disk, and personal cloud disk as permanent storage. Thus, modern “personal cloud DOS” is created.

In this “cloud DOS” operating system, the Internet plays a role of basic resources like computer buses, hard disk and internal storage. The applications are not entitled to directly call the Internet access interface, and have to submit network access demands as specified by the operating system, which shall complete 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. OS of Elastos is designed against personal cloud storage when sandbox of virtual machine operates.

When the APP or service is running in such a virtual machine, we do not know the bottom of the physical machine OS is Linux or Windows, also not know whether it is running directly on some low-end bare hardware. The underlying host OS is not known, it is also difficult to implement the virus spreading. It is also unlikely to launch a network attack as the APP cannot access the Internet.

We do not know the distance between the APP and service, which are running in such a virtual machine, - the two may run on the same PC, they may also run on the same LAN, of course, they may also be distributed at both ends of the Internet. The application dynamic discover and accept the services within the LAN has a bunch of new names: fog computing, peripheral computing, edge computing. As dynamic detecting peripheral services, security risks bear the brunt, so a virtual machine is used as a sandbox for isolation.

APP and services may be far away in the horizon, probably also just around the corner.

APP and services neither 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?

It is improper for men and women to touch each other’s hands in passing objects in ancient China, it is commonly to see that passing on a message by a matchmaker. A call to find another man, she dials a universal unique number (UUID, Universal Unique ID), the operator behind quiet gets through.

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. Turing machine will not be on-line, remember! What need to access the Internet is the Interconnection between two Turing machines, and APP has nothing to do. Just like two cell phones, dialing a number can communicate between two persons, and really nothing to do with what they want to say.

Mobile phone can access the Internet, the App inside the phone cannot directly access the Internet. APP can find other services in the phone through the cell phone. Imagine the phone into a virtual phone (software-defined cell phone), which is also the Elastos Runtime of Elastos. Think of the mobile operator 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 aElastos 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;

(2) As a container sandbox, Elastos OS prohibits App to directly create the process, does not allow App to directly access to TCP/ IP, to isolate the virus transmission route;

(3) Elastos distributed framework (Elastos Framework) on behalf of App to create and find the micro-service deployed in the local, peripheral, cloud, automatically generate remote calls and event callbacks, in order to avoid the possibility of launching a network attack from a third party APP or service.

(4) Use blockchain to confirm the user ID, and then carry out the assets confirming right for digital content and Internet equipment.

(5) The new conceptual intelligence contract runs only at the nodes of the relevant side chain agreement authorized party, thereby improving the verification efficiency and being compatible with the legal digital currency.

On the premise of possessing their own data forever, users select or replace the operator, as well as select or replace the ads 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 stored in the decentralized public video websites are only GIF dynamic images from media content, author personal cloud network link and P2P download seed.

The human society has been improving efficiency from drilling for fire and slash-and-burn to today’s robot and artificial intelligence, and the trend of accelerating in modern times is very obvious. The human mind forms an unchanging pattern.

But software replication costs nothing, and there are no three major inborn 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 (ho ho).

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 the digital currency, such as Bitcoin and Ehercoin ecosphere based on the blockchain technology, there is still no decentralized application that can rival main stream mobile applications (APP). In other words, in the digital world, “payment in one hand” has become a reality, but “delivery in the other hand” is still unreachable.

The blockchain technology can prove the feasibility of virtual currency and ensure the permanently irretamable 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”.

Envisage this: How wonderful it would be once “material scarcity, barter, feudalism, and exorbitant taxes” can be CosPlayed in the virtual world (not AR/VR of AR/VR)!

Elastos - Blockchain Powered Internet (Elastos: Blockchain Powered Internet），a point-to-point virtual operation network that takes blockchain as a basic agreement and supports a stack of single-process 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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[Elastos design concept]

You may say it is the popularization of science, but I actually would say that it the road to the future of Internet development. In February 1999, we thought that the future of OS must be driven by Metadata. 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.

The reason for my never giving up is very owing to those Elastos engineers who have kept working hard in the past seventeen years. It was their work that made me have a stronger belief that I was right eighteen years ago.

Time flies. The Internet develops so fast that the soul has always failed to keep pace with it. Now, the Internet has exposed a great many of problems including lack of safety guarantee for Internet of things and peripheral computation. I think it is the time that we can say it but we can hardly fix it. So, it's time for us to slow down and think seriously about it.

Where the blockchain technology can confirm sign ID under decentralization and the metadata-powered OS can automatically generate network calls, there is a hope for an Internet without virus and network attacks.

Only great efforts can make a difference. People may neither know blockchain nor metadata and OS (operating system). But is it true that nobody thinks that it is impossible to build an Internet with honesty and without virus attacks?

The dream is not just a fantasy, what if it is achieved someday? It is the best thing in the world. If we restrain ourselves in good manners, the world will be full of benevolence.

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[Elastos work plans]

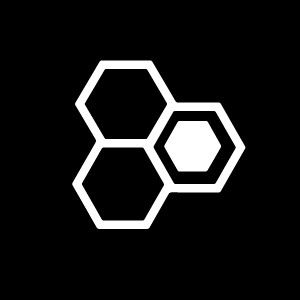
Our private action is mainly aimed for the Elastos open source ecosystem, a blockchain-powered Internet ecosystem. Run the blockchain, set up decentralized individual cloud disk based on Elastos Carrier, and build Elastos ID general ledger in Carrier server, including record user ID, DigitalCapsule ID (micro website ID) and DApp ID, etc. Structure Elastos Runtime (C++VM) based on Carrier. It is predicted that DApp development will be started at the end of this private action. Now, we have already had the glimmering of it that we will find partners with Internet business models and change into the decentralized ID, no more the user information will kept in the server, and realize that users can hold data and decide how to exchange it on their own. Hopefully, the entire work will gradually be online one after another within one year after this private action.

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

Programming language and framework are needed for DApp to solve some rigid demands. I propose to regard "application doesn't use Internet, Internet doesn't use application" as the feature of Elastos and safety as the rigid demand. 100 percent open source, the application can neither use the Internet nor create other processes, and all communication end-to-end encryption is made.

Except that it needs several months to build a basic environment, the attempt certainly will be driven by the application and business model. The "intelligent economic development zone" can be constructed only when it can help DApp to make money.

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