

Blockchain is an economic issue

In the standard vision of the computing world,

- **each machine is a single computer**, a Turing Machine with Random Access Memory since the late 50's, equipped with an internet connection from the late 80's – already an incredible sophisticated device. In the first decade of this century, this kind of device spread world-wide as « *smartphones* », a palm glass with eye-finger command, experienced by 85 % of the world population in less than a decade.
- **on any computer, any user uses applications to store and exchange files**, mainly through social networks, office softwares and mail clients. Almost all professional applications are built on the “*session*” model of office softwares. Each user session in any application is embodied in a file, opening the file restores the session, its contribution rewrites the session, the user can save the file for later use. Every one uses this everyday.

Blockchain is a revolutionary set of intricate concepts which completely changes this way of thinking. Its main concepts are « machine », « story » and « rule »:

The **machine** is no more a single computer but a society of “*computers*” bind together by the common **rule**. Each computer follows the rule, no matter what.

Every computer of the society works on the “*same*” file which must be an incremental set of immutable

records : the **story** – the exchange mean of a social network. Saying this, the first application of blockchain should have been a social network. But when you consider what could be a social network on the blockchain, like **Korben** for example, what you get is:

- Price of **account creation**: €0,018392864
- Price per **tweet**: €0.0032405508

So you transpose an already known use in the new computing paradigm... What came just after?

A price.

Disturbing. Specially for a social network...

Why so? Look at the first blockchain application. It is not a social network, but a crypto-currency. The Bitcoin. On the bitcoin, you “*tweet*” financial transactions labelled in bitcoin. And bitcoin is reward the owners of computers in exchange of a work needed to protect the system against external and mechanized aggressions.

Again, transpose a known issue in the new paradigm, “*building the universal money*”, and immediately after: its economical model.

In the case of bitcoin, these knots are very tied, as the rest of it. Bitcoin is meant to be the definitive proof of concept of a computational revolution, and so far, this claim is proved. Excuse our rapid course over here but our purpose is not to discuss all aspects of blockchain, bitcoin, and so forth.

Our main assumption is to state here that blockchain always come with an economic issue tied with it.

Value in a story-based system

We saw that blockchain is a mean to allow vast populations to share the same story.

Mezzònomy works on story-based systems for almost a decade now, and has produced a theory of value in such systems: *when each input is uniquely identified and immutable, it is value, whatever you use it for*¹.

Therefore, any application based on a story-based model instead of a session model is bound to its economical model, prior to its final use.

Let's say it once for all, after a decade of studying story-based model with the help of a mathematical breakthrough called “*hypertext algebra*”, mezzònomy can realise any application for any intend on a story-based system.

¹ In 2013, we used to bunch this in a word play “*Unique and Secured Data*” is money.

Through only mezzonomy direct experience of it, or its associate ones, applications built on story-based systems may lead to the following realization of user intention :

- launching and maintaining a satellite constellation [THALES ALENIA SPACE | 1997 -2000],
- throw relativistic protons in a human body to cure cancer [IBA | 2001-2002],
- building a plane from sketches to the sky [AIRBUS | 2005-2010],
- delivering parcels or commodities world-wide with numerous actors [NDA | 2011-...],
- insuring payment of mutual insurance in a national health service [NDA | 2016-...],

There is no issue here. And that's the issue to build economical model of such a story-based system.

Sharing stories and protecting value

In 2010, mezzonomy patent a method to share stories and keeping safe their intrinsic value.

This effort was funded by love-money and a subvention. This effort is the social capital of the company. The patent was definitely accepted in the US April the 4th of 2017, the precise day where Sir Tim Bernes-Lee received the ACM A.M. Turing Award.

In 2010 patent, the story has a meaning: the learning by a story-based machine of the “intention” of the users it gathered, as “an order that is there” prior to its realization².

The patent embodies the machine learning process as “a story of inputs”:

- The patent identifies $G_X(\text{Story})$ as the graphical representation for the user X of a given *Story*. This representation is “a composition of W3C regions”, that is, in common tongue, an HTML page.
- If needed, a contributor subject C inputs a “learning instruction to the machine” to

Any application hosted by a story-based system is just a variable in the economical model bound to that story-based system.

Incidentally, there is a point in the intention list, a hidden category.

All these intention are pretty complex and need cooperation of numerous actor to achieve it, thousands of them.

And in fact, since the first one in 1997, it appears that many stories, linked together, were needed to reach these intention realization.

How can we link stories?

We spent ten years to answer that question.

And when we found the solution, we also found mezzonomy.

make $G_C(\text{story}; \text{input}_C)$ “closer to his view” of the common intention

- Any subject X sees $G_X(\text{Story}; \text{input}_C)$ as its view of the story
- If needed, whatever subject... [ad libitum]

The complete title of mezzonomy patent referenced as EP2011/071770 and US 20130304678 is “*Method for partial learning sharing of a software application*” due to an historical background already depicted in previous notes.

The scope of the patent to application providence is not an issue : a document is an application that does not accept inputs. It may be a “paper-based application”.

This being said, the patent assume that the shared intention around “*primary machine*” is to provide a quotation application for different kind of retailers³. Around “*secondary machine*”, shared intention is to retail this kind of items. “*secondary subjects*” do not need to access “*primary machine*” only the application they need, and “*primary subjects*” do not

² This philosophical notion is known as Wittgenstein thesis – see “*governmental methodology for software providence*” (LYEE).

³ in the “*secondary process*” of the patent, it is a “*bicycle retailer*” inside a supply chain involving a “*bicycle provider*” and a “*machine-welded frame*” industrial.

want to see their client to intrude in their process or pillage their knowledge.

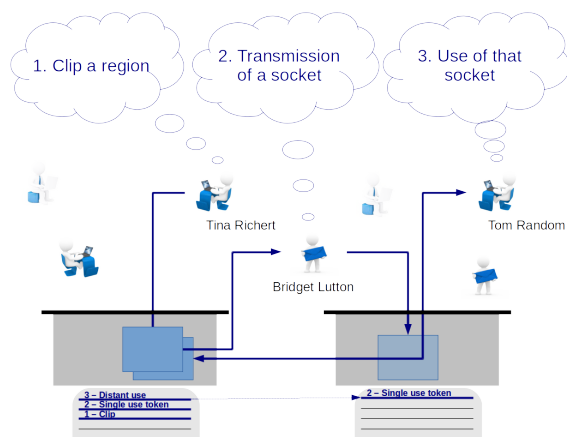


Figure 2: Partial sharing controlled deployment

The method depicted in the patent is very intuitive, one actor defines a region on its view of the story of the “primary machine” and “clips” it. This operation has defined a “primary region” which does not concerns all the view of the story, but only the “clipped part” of a given graphical representation.

Marginal cost of fraud

Following Michel Rascol proposition, chairman of SYNTYS, associate of mezzonomy since 2017, editing content protected by partial sharing is a “serious” cooperative game with unbound number of participants.

Selling their single-use tokens with their own conditions is income of the contributors.

Now, consider that each story implements a **Shapley Value** as retribution of their contributors based on their activity, in a cooperative model. It’s “the best of all possible worlds”, indeed.

But what about fraud?

Stealing an application without its behaviour is not very useful, but stealing an application with no behaviour – a **document** – might be.

What if one of the contributor steal a document issued from the story to its own interest?

We studied this situation for an economical point of view in 2015 with the help of Michel Vandenberghe, former senior IBM advisor.

Once the perimeter is clipped, it acts as a “partial sharing” server.

Partial sharing server address is not public: any actor of the primary machine deliver only single-use token to access it. That could be done on-demand in exchange of a of monetary transaction or tightly controlled, unit per unit, if needed.

Figure 2 expresses that controlled deployment process. Note that “secondary users” can clip and view their socket to address different quotation processes, but all the computing of input internal to any image of the “primary clip” will be done inside the primary machine.

The “primary story” is kept safe, only its resulting behaviour is transmitted.

As said before, the absence of possible behaviour of the resulting application– like in a standard PDF – is just a limit case, fully compliant with the patent.

The key idea is that, any machine can not be used to process that output without detecting the fraud.

Any re-entrance of these data in any machine, will, sooner or later, trigger the fraud alert. Once the fraud is detected, the machine will ask to re-link it properly.

In fact, this is a very common behaviour of the machine, as soon as you type a content, the machine alerts you of “potential fraud”.

It is called “completion”!

Intention recognition.

Most of the time, “completion” is desired by the user. It a key feature to avoid “reinventing the wheel” and access value linked to its own intention. But when you’re trying to fraud, and making an attempt to copy the work of others, “completion” is a plague, and rejecting a 99% completion is rather a suspicious behaviour.

A red light is blinking somewhere. You should accept the completion or be ready to argue.

Therefore, fraud means a definitive exclusion of any reuse of the stolen content in any machine around the world. The only way to give value of a fraud is use its content without any contact with any machine. that's already a very important price, story-based machines are the future of everyone, like smart-phones are. The productivity gains are tremendous, in a quarter of a century, everyone will see our way of computing as incredibly fake, and will probably blame these flaws as the cause of our recent and may be damaging political issues.

Session model is a fake factory

The major flaw of our information system based on the “*session*” model is its incredible complaisance with fraud.

One of the most common operation, performed millions of times everyday is an embodiment of fraud: Cut’n Paste.

What does Cut’n Paste? It invents a fake past in which the user would have retyped in a blink all the content stored in the clipboard. Hundreds, thousands of signs. Just like that.

The computer cheated itself – like it knew it must.

Not anymore.

As envisioned by Theodore “Ted” Nelson in 1965, the story-based machine of the future, the “*Hypertext*” as he called it, will only allow “*transclusions*”.

In is words, “*transclusions*” are bidirectional hyperlinks present both in the source (the “*Clip*”) and the destination (the “*View*”).

And therefore we replace Cut’nPaste by an operation called Clip’n View with exactly the same behaviour than that old fake factory, but no fake.

We prototyped in 2015 a complete text-editor with a story-based model. Text edition in that context is exactly the process depicted in 2010 patent for graphical W3C component called `<textarea/>`.

In a 1973 paper cited in the Information Age exhibition in Science Museum in London, Ted

Anyway, let’s imagine that without the story-based world-wide machine you can still give a value to your fraud.

The point is “*intention is never reached*”, story building is an infinite and non-terminating process. The intention realization by the community linked by the Shapley redistribution will beat the fraud eventually.

And above all, the fraud will be detected.

By design.

Nelson envisioned the internal machinery of the hypertext.

He described a set of bricks linked in an evolving network.

You can reach the same vision by trying to figure out how to implement the patent in order to wipe out fake from the simplest text editor⁴.

We called these bricks “**inputs**”.

Each input is associated to a source, and guaranty its future income on any use of it and also a right to control the use of it, with respect to the weight of this contribution by the Shapley Value of that contribution.

Eventually, inputs are sealed in blocks gathered by user consensus as a collective step toward the realization of their intention.

And here it is.

You can implement hypertext over a blockchain.

And be a partner to the death of fake.

⁴ If you reach it, you should call us for immediate application.