W3C Blockchains and the Web Workshop – Position Statement

Shigeru Fujimura, Hiroki Watanabe, Atsushi Nakadaira
NTT Corporation

[Overview]

NTT has been studying brand-new applications that take advantage of features of blockchains. One such influential application is digital content rights management. Rights management here is not a method for controlling content, such as so-called DRM, but a method for handling rights appropriately. For example, legitimate rights processing needs to be carried out for secondary use of digital content. Of course, reference functions using hypertext are sufficient for just quotes.

However, the actual state of the Web is such that unauthorized diversions of digital content are rampant. One of the causes of these diversions is that intense labor and high costs are required for rights processing. We expect that appropriate and feasible web content distribution in terms of rights will be achieved by utilizing blockchain technology. Thus, we would like to encourage W3C to treat rights management as one of the use cases of blockchain in this workshop.

[Our rights management technology using blockchain]

NTT organized a breakout session about the concept of web content distribution based on blockchain and showed a demo on the use control of the video.
(see, https://www.w3.org/wiki/TPAC2015/blockchain-webbased-content-distribution)

In this workshop, we will introduce a mechanism for proving the creator of the content and for ensuring authenticity of the content, possibly with a demonstration. The overview of our system is shown in Figure 1. Our technology is related to the "Proof-of-Existence" concept in the discussion about blockchain technology.

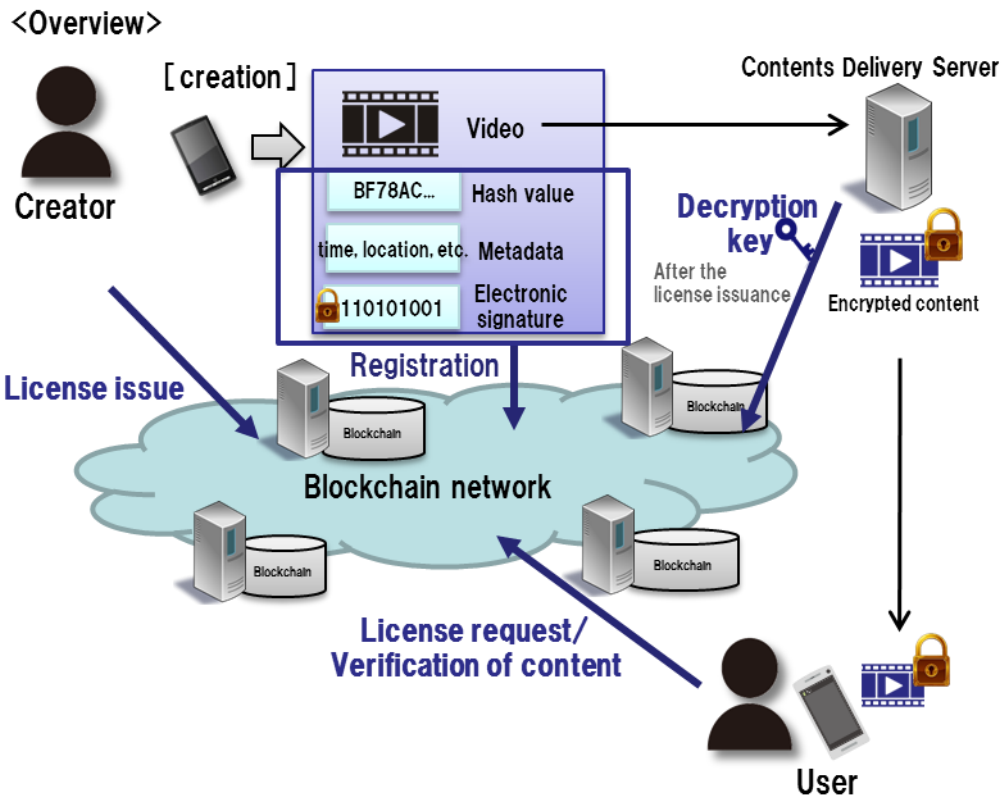

Fig.1. Overview of our prototype system.

[Topics to be discussed in W3C]

In general, user access to the blockchain using client software, a so-called “wallet.” Under the circumstances, a wallet’s functions and features depend on the blockchain platform (e.g., bitcoin and ethereum), and depend on individual wallet software.

If engineers want to build a service combining the blockchain with the Web, the users would basically access their wallets via their web browser. Thus, whether or not common functions are defined to web browsers as JavaScript API should be discussed. One possibility is considering an API related to e-signatures and this API would be related to the Web Cryptography API that is being discussed in the Web Cryptography Working Group.

When we think about common functions required in the web browser with respect to blockchains, in addition to the blockchain platform, the possibility of designing a more sophisticated service by bridging multiple blockchains (so to speak, the blockchain-bridge concept) should also be considered. In addition, when we think about use cases of blockchains, one common feature among machine learning, WoT, and blockchains, that receives the most attention now is “autonomy”. Thus, we will discuss

what kind of services should have autonomous operation.