ARE BLOCKCHAIN DEVELOPERS ALSO DEVELOPING A PATENT PROTECTION STRATEGY? A LOOK AT PATENT FILING ACTIVITIES IN THE AREA OF BLOCKCHAIN

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In an earlier article (Blockchain. What is it and what are its IP issues?), we provided an introduction to blockchain technologies and explored some of the IP issues surrounding this emerging field. Notably, we wondered if companies working in the blockchain technologies would look to protect their innovations using intellectual property rights. When we recently did a little digging within the databases of various patent offices, we discovered that companies have indeed started staking their claim in this field through the filing of patent applications.

Developing the blockchain backbone

Moving from the existing of framework of centralized servers and databases to a blockchain framework where processing and storage of data will be distributed amongst multiple computers and multiple parties will represent a significant change, both on the hardware and software level. While the architecture of a blockchain network is already fairly mature for various types of cryptocurrencies, the blockchain architectures for other applications are still under development in many cases.

Unsurprisingly, our research showed that leading financial institutions are one of the leading patent filers covering blockchain architecture. For example, banks need to track, process, and store information for a large volume of financial transactions. Carrying this out using blockchain technology can be different from the current methods of doing so.

Currently, Bank of America seems to be leading the way in terms of the number patent applications filed. In Canada, TD Bank also seems to have invested heavily in this area, having also filed a number of patent applications in the U.S. and Canada. Both Bank of America and TD Bank's earliest patent applications in the blockchain were filed in 2015, demonstrating that development has already being ongoing for several years.

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Blockchain for specific applications

In addition to building the blockchain architecture, one also needs to consider how to make use of that architecture to process and store information for specific real-world applications.

A modular blockchain architecture is a ready-to-use blockchain that permits developers to apply blockchain solutions for various specific use cases without also being concerned about actually building the foundations of a blockchain network. For example, the Hyperledger Fabric[1] is one of the most widely used modular blockchain architecture and is the product of a consortium of organizations, having initially been contributed by Digital Asset and IBM.

Ready-to-use blockchain networks allows start-ups, smaller companies or companies that are otherwise not technology-focused, to build blockchain solutions for specification applications. For example, our search showed patent applications published this directed towards the following solutions:

- Blockchain-based vehicle records that store historical information about vehicles, such as collision information, financing information, transfer of ownership information, etc.;[2]

- Biological samples used in medical treatments can be electronically tracked through a workflow based on observed properties of the biological sample by generating a blockchain of sample states,[3]

- Using a blockchain to track and identify segments of an original video or audio stream that find their way into an edited stream. This may be useful to identify authentic videos from altered ones, for example, to detect fake news.[4]

Don't forget cryptocurrencies

The rise in interest in cryptocurrency and the corresponding rise in the value of these various digital currencies has been hard to ignore in 2017 and early 2018. Our research showed that the major payment services are one of the players who have looked to protect their innovations in the cryptocurrency space. Mastercard, Visa, and Paypal have all taken an interest in the blockchain space and have filed patent applications at the U.S. Patent Office. Union Mobile Pay and China UnionPay, which are both very popular Chinese

[1] Hyperledger Fabric, www.hyperledger.org/projects/fabric
[2] U.S. publication no. US20180018723, entitled "Distributed ledger platform for vehicle records", priority date: 2016-07-18
[3] PCT publication no. WO2018057520, entitled "Sample tracking via sample tracking chains, systems and methods", priority date: 2016-09-20
[4] U.S. patent no. 9,870,508, entitled "Securely authenticating a recording file from initial collection through post-production and distribution", priority date: 2017-06-01.

payment services, also feature prominently with multiple filings at the Chinese Patent Office.

However, much like other financial institutions, these companies have looked at future systems that extend beyond the current versions of cryptocurrencies. For example, US one of Visa's patent applications describes a method for managing loyalty points from multiple loyalty programs using a cryptocurrency-like scheme.[5]

Keep in mind that patent applications are typically not published until about 18 months after their priority date. This means that we are only now seeing patent applications that were filed in mid 2016. Given the fast pace at which blockchain technologies have developed, one can expect an even larger number of patent applications will have been filed since then.

Patentability of blockchain technologies

A blockchain-based invention needs to meet the traditional criteria of novelty, non-obviousness, utility and patent-eligible subject-matter in order to be patented.

Novelty and inventiveness can reside in aspects of a new blockchain architecture or in the novel use of blockchain technology for a specific use. Given the rise in interest in this field, applicants should consider conducting a patentability search at the appropriate time to determine whether their invention meet the criteria of novelty and non-obviousness.

Applicants should also be aware of the patent-eligible subject-matter issue. [6] Inventions related to aspects of a blockchain architecture will generally fall within one of the categories because it will be possible to show an improvement or modification to computer technology. For application-specific innovations based on a "generic" blockchain, applicants should be careful that the use of the blockchain is not a mere afterthought within the invention.

Ultimately, each block-chain based invention should be evaluated on a case by case basis to determine whether these criteria for patentability are likely to be met.

[5] U.S. publication no. US20170161734, entitled "Methods and systems of using a cryptocurrency system to manage payments and payment alternatives."
[6] i.e. whether the invention falls within one of the categories of patentable inventions