Patenting Blockchain Innovations

Strategies and Considerations

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Meet the Speakers

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Overview

- **Topics/Agenda**
  - Historical perspective
  - To patent or not to patent…
    - **Is there an invention?**
    - **Infringement detectability**
  - Drafting considerations
    - **Subject matter eligibility issues**
    - **Divided infringement issues**
  - Foreign filing considerations
  - Current trends and future outlook

Webinar | Virtual Patent Marking

Virtual patent marking is a convenient alternative to traditional patent marking that allows patentees to provide information about the patents that cover their products online, saving time and expense and allowing for easy updates when patent information changes. But as a fairly recent development in patent law, judicial guidance clarifying the specific requirements of virtual patent marking is relatively sparse. Patentees wishing to take advantage of the benefits of virtual patent marking should act prudently when incorporating it into their patent marking schemes.

Complimentary Webinar
Tuesday, October 26, 2021
1:30 - 2:30 PM ET

REGISTER

On Tuesday, October 26, join Fish attorneys Brianna Chamberlin and Joseph Herriges as they discuss best practices for virtual patent marking, including:

- Patent marking requirements
- Virtual marking: case law, examples, and pitfalls
- Minimizing liability risk for false marking

Count me in.

Overview

The purpose of this presentation is to provide educational and informational content and is not intended to provide legal services or advice. The opinions and other statements expressed by the presenter are merely educational examples/summaries, and do not represent legal opinion

Blockchain Patents – A Historical Perspective

The beginning of it all (sort of…)

Bitcoin: A Peer-to-Peer Electronic Cash System

Satoshi Nakamoto
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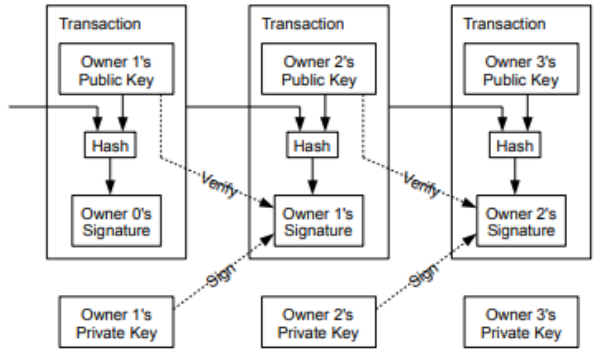
www.bitcoin.org

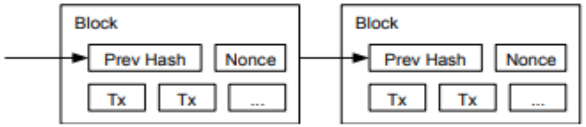
Abstract. A purely peer-to-peer version of electronic cash would allow online payments to be sent directly from one party to another without going through a financial institution. Digital signatures provide part of the solution, but the main benefits are lost if a trusted third party is still required to prevent double-spending. We propose a solution to the double-spending problem using a peer-to-peer network. The network timestamps transactions by hashing them into an ongoing chain of hash-based proof-of-work, forming a record that cannot be changed without redoing the proof-of-work. The longest chain not only serves as proof of the sequence of events witnessed, but proof that it came from the largest pool of CPU power. As long as a majority of CPU power is controlled by nodes that are not cooperating to attack the network, they'll generate the longest chain and outpace attackers. The network itself requires minimal structure. Messages are broadcast on a best effort basis, and nodes can leave and rejoin the network at will, accepting the longest proof-of-work chain as proof of what happened while they were gone.

1. Introduction

Commerce on the Internet has come to rely almost exclusively on financial institutions serving as trusted third parties to process electronic payments. While the system works well enough for most transactions, it still suffers from the inherent weaknesses of the trust based model. Completely non-reversible transactions are not really possible, since financial institutions cannot avoid mediating disputes. The cost of mediation increases transaction costs, limiting the minimum practical transaction size and cutting off the possibility for small casual transactions, and there is a broader cost in the loss of ability to make non-reversible payments for non-reversible services. With the possibility of reversal, the need for trust spreads. Merchants must be wary of their customers, hassling them for more information than they would otherwise need. A certain percentage of fraud is accepted as unavoidable. These costs and payment uncertainties can be avoided in person by using physical currency, but no mechanism exists to make payments over a communications channel without a trusted party.

What is needed is an electronic payment system based on cryptographic proof instead of trust, allowing any two willing parties to transact directly with each other without the need for a trusted third party. Transactions that are computationally impractical to reverse would protect sellers from fraud, and routine escrow mechanisms could easily be implemented to protect buyers. In this paper, we propose a solution to the double-spending problem using a peer-to-peer distributed timestamp server to generate computational proof of the chronological order of transactions. The system is secure as long as honest nodes collectively control more CPU power than any cooperating group of attacker nodes.





Satoshi Nakamoto, "Bitcoin: A Peer-to-Peer Electronic Cash System," https://bitcoin.org/bitcoin.pdf.

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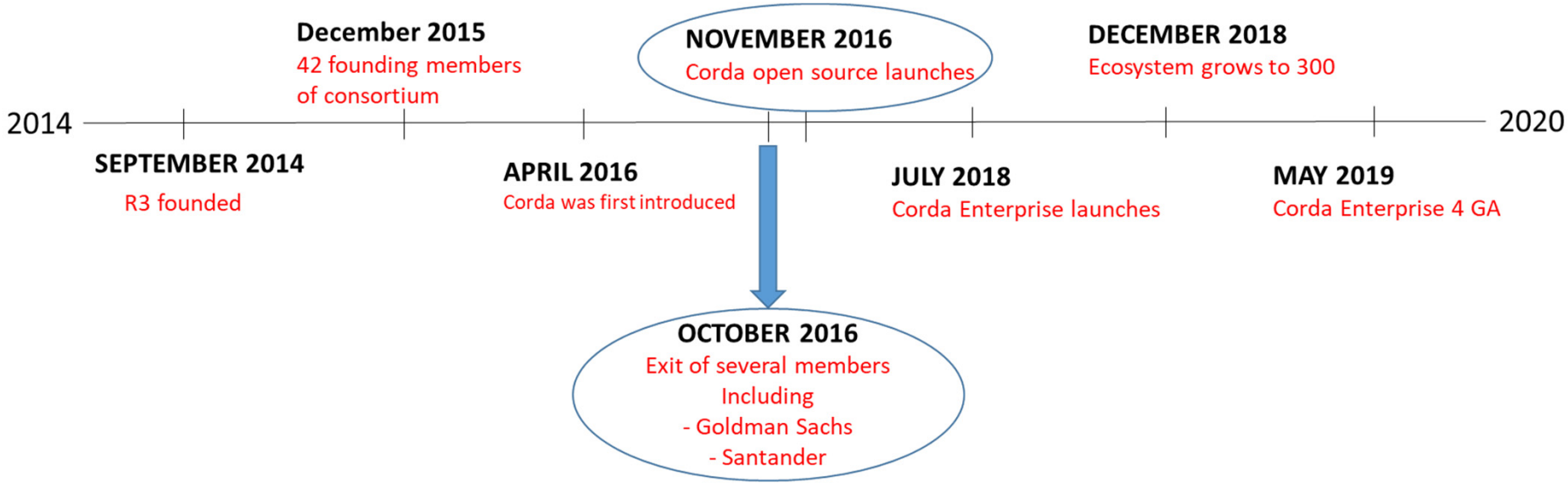
Timeline of Blockchain Consortium R3



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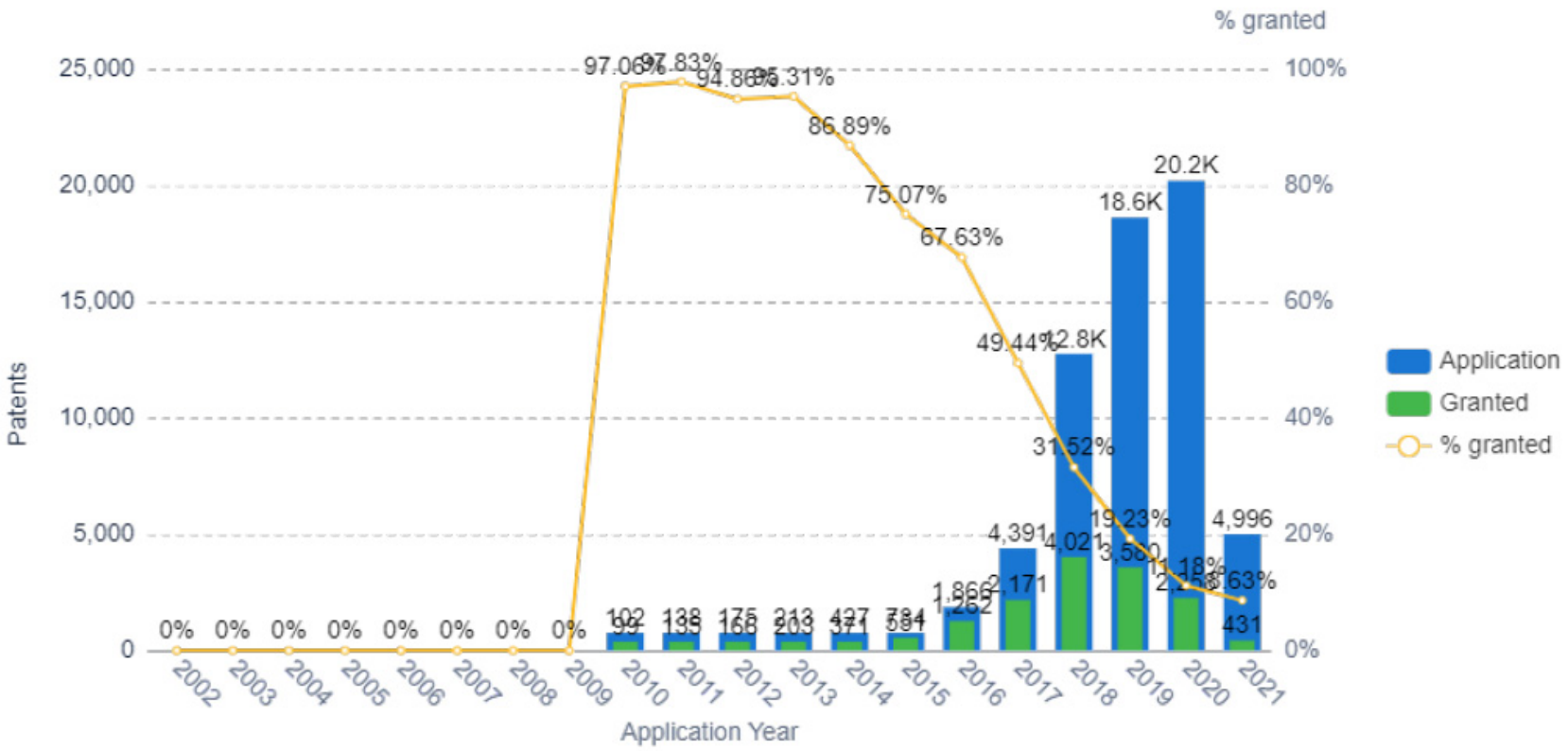
Timeline of blockchain patent landscape



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To Patent or Not to Patent…

Is there an invention?

- **At its core, blockchain is a combination of a number of existing technologies**
  - Cryptography
  - Database
  - Distributed systems

- **Important to ask probing questions**
  - Why blockchain and not regular storage?
  - How is it different from existing blockchain systems?
  - Is it improving any aspect of existing blockchain systems?
  - Typically, storing an end result—no matter what field the result pertains to—”on a blockchain” is not enough

Infringement detectability

- **Basics of patenting ecosystems**
  - Limited monopoly in exchange of disclosing invention to the public
  - Patents do not confer any positive rights – negative rights only (ticket to court)
  - In general, ability to detect infringement is key to enforcement

- **Can a potential infringer be held accountable?**
  - What entities are potential infringers?
  - Is the innovation buried deep in the source code?
  - Is there an outward manifestation that can at least raise suspicion of infringement?

Real World Example

A method for automatic storage of blocks in block chains… comprising

…

creating … a modified Galois field GF(p^n) comprising:

(a) populating a first portion of a Galois field lookup table in the modified Galois field GF(p^n) with p^n unique field elements;

(b) populating a second portion of the Galois field lookup table with a plurality of virtual network address locations…

What do you think about infringement detectability of this claim?

a) Easily detectable
b) Impossible to detect
c) Hard, but may be possible

Strategy considerations

- **Is maintaining the innovation as a trade secret an option?**
- **What's the overall business strategy of applicant?**
  - Increasing size of the portfolio as a buildup towards acquisition/IPO?
  - Licensing considerations?
  - Portfolio as a defensive/offensive tool?
  - Budgetary issues
- **One size does not fit all**

Drafting Considerations

Subject matter eligibility (a brief recap)

- ***Alice Corp. v. CLS Bank International***
  - Computer method and system to reduce settlement risk in financial transactions
  - Applies *Mayo* two-step process
  - Multiple Federal Circuit cases interpreted the decision
- **Confluence of software and financial aspects implicate many blockchain patents**
- **Current interpretation summarized in October 2019 Guidance from the USPTO ("Revised Guidance")**

Rationale for Revised Guidance

- **Using only analogies to prior cases with disparate technologies leads to unpredictability**
  - "As a fundamental policy, a legal term such as 'abstract ideas,' if the exclusionary standards of Section 101 are to function as a valid rule of law, must provide concise guidance for the future. In that sense, a rule of law is a prediction of how courts will decide future cases. 'Abstract ideas,' like the term 'obscenity,' may provide a cultural consensus in a given instance regarding whether a past event qualifies, but it fails to provide the kind of specificity and clarity that makes it useful for future prediction of outcome," *Interval Licensing v. AOL*, J. Plager concurring-in-part and dissenting-in-part, slip op. p. 6 (Fed. Cir. 2018)

Patent Eligibility per Revised Guidance

- **Step 1:** Is the claim directed to a statutorily patentable class under 35 U.S.C. § 101?
  - Process, machine, article of manufacture, or composition of matter

- **Step 2A:**
  - Prong 1: Is the claim directed to a mathematical method, a method of organizing human activity, or a mental process? **If the answer is no, the claim is eligible**
  - Prong 2: Does the claim integrate the abstract idea into a practical application of the judicial exception?
    - **Improvement** in the functioning of a computer **or** other technology (technological improvement)
    - Implementation or use in conjunction with **particular machine** integral to the claim

- **Step 2B:** Does the claim recite additional elements that amount to significantly more than the judicial exception?

Eligible or Ineligible?

Automating synchronization between an animated character's face and the speech the character is saying using sets of rules.

1. A method for automatically animating lip synchronization and facial expression of three-dimensional characters comprising:

obtaining a first set of rules that define output morph weight set stream as a function of phoneme sequence and time of said phoneme sequence;

obtaining a timed data file of phonemes having a plurality of sub-sequences;

generating an intermediate stream of output morph weight sets and a plurality of transition parameters between two adjacent morph weight sets by evaluating said plurality of sub-sequences against said first set of rules;

generating a final stream of output morph weight sets at a desired frame rate from said intermediate stream of output morph weight sets and said plurality of transition parameters; and

applying said final stream of output morph weight sets to a sequence of animated characters to produce lip synchronization and facial expression control of said animated characters.

Eligible or Ineligible?

Building a composite facial image from constituent parts, to overcome technological inefficiencies "by encoding the image at one end through a variety of image classes that required less memory and bandwidth, and at the other end decoding the images."

1. A method for creating a composite image, comprising:

displaying facial feature images on a first area of a first display via a first device associated with the first display, wherein the facial feature images are associated with facial feature element codes;

selecting a facial feature image from the first area of the first display via a user interface associated with the first device, wherein the first device incorporates the selected facial feature image into a composite image on a second area of the first display, [**3] wherein the composite image is associated with a composite facial image code having at least a facial feature element code and wherein the composite facial image code is derived by performing at least one multiplication operation on a facial code using one or more code factors as input parameters to the multiplication operation; and

reproducing the composite image on a second display based on the composite

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Drafting Considerations

- **Specification should answer the following questions**
  - What **technical** advantages or improvements are achieved by the claimed invention
    - **Per Revised Guidance, the specification should provide "sufficient details such that one of ordinary skill in the art would recognize the claimed invention as providing an improvement"**
    - **Focus on technical aspects**
      - Latency, response/access time, enhanced security, reduced signaling, efficient bandwidth usage etc.
  - How the invention modifies and/or improves existing blockchain/DLT technology?
    - **Be wary of the increasingly growing body of prior art**
    - **Include technical details to support novelty and non-obviousness positions**
    - **Include plain language description of the underlying problem and how the invention solves the same**
    - **Be creative with the figures**

Divided infringement concerns

- **The distributed nature of blockchain processes implicate the doctrine of divided/split infringement**
- **Ideally drafting from the perspective of a single entity is preferred**

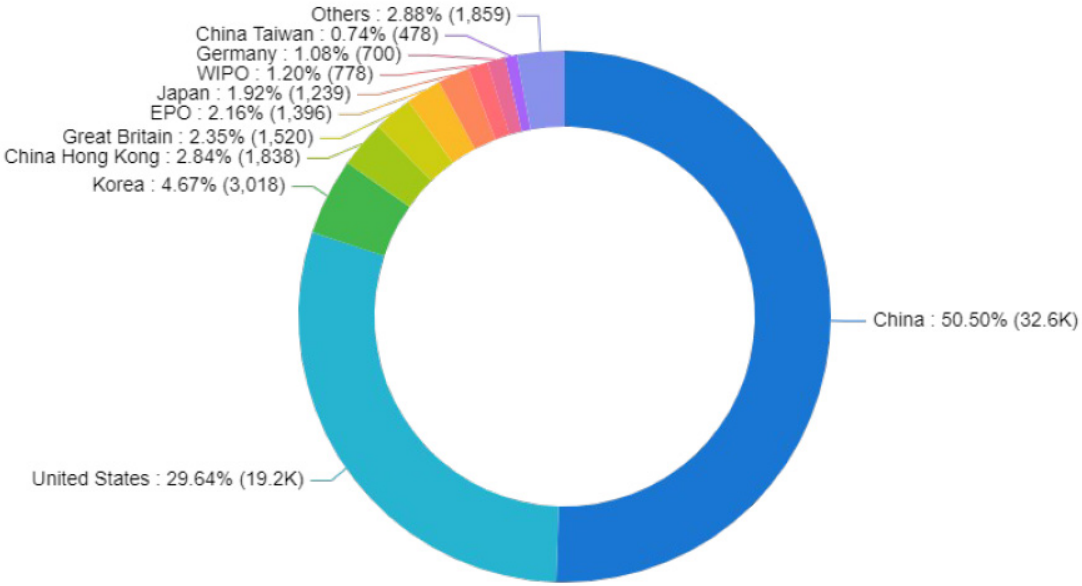
A method to record transactions on a blockchain network comprising: *- submitting a transaction to the distributed network;* *- providing a cryptographic algorithm;* *- computing a hash of the transaction based on the cryptographic algorithm to generate a hashed transaction;* *- **verifying the hashed transactions via a consensus process**; and* *- recording the verified transaction as a block on the blockchain.*	*A method to record transactions on a blockchain network comprising:* *- receiving a transaction submitted to the distributed network;* *- providing a cryptographic algorithm;* *- receiving an indication that a hash of the transaction computed using the algorithm is verified; and* *- recording the verified transactions as a block on the blockchain.*

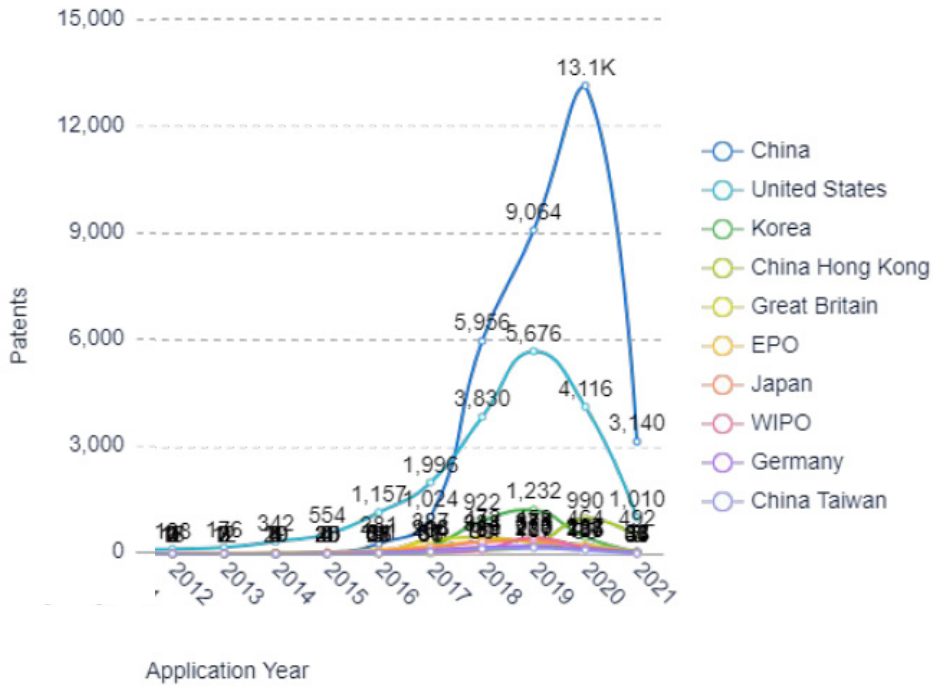
Divided infringement concerns

- **In some cases, drafting from the perspective of a single entity may not be feasible**
- **Consider minimizing the number of entities to cover inventive concepts**
- **Consider relationships between the entities**
  - *Akamai Techs., Inc. v. Limelight Networks, Inc.*, 797 F.3d 1020 (Fed. Cir. 2015)
    - One entity is responsible for others' performance of claim limitations
      (1) where the entity directs or controls others' performance
      (2) where the actors form a joint enterprise
- **Consider type of blockchain application**
  - Open/permission-less v. consortium/permissioned

Foreign Filing Considerations

Top Countries





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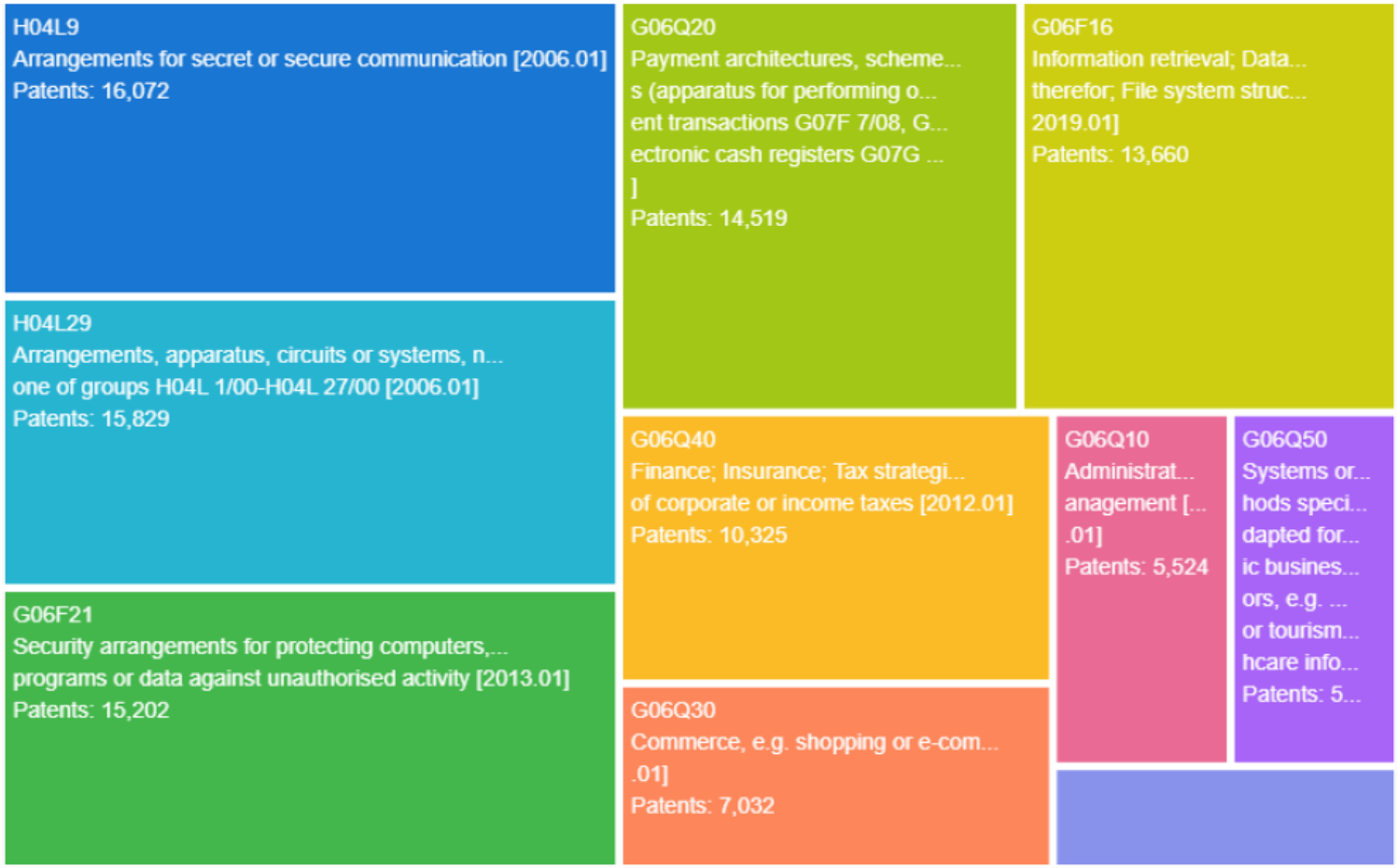
Current Trends and Future Outlook

Key Technologies



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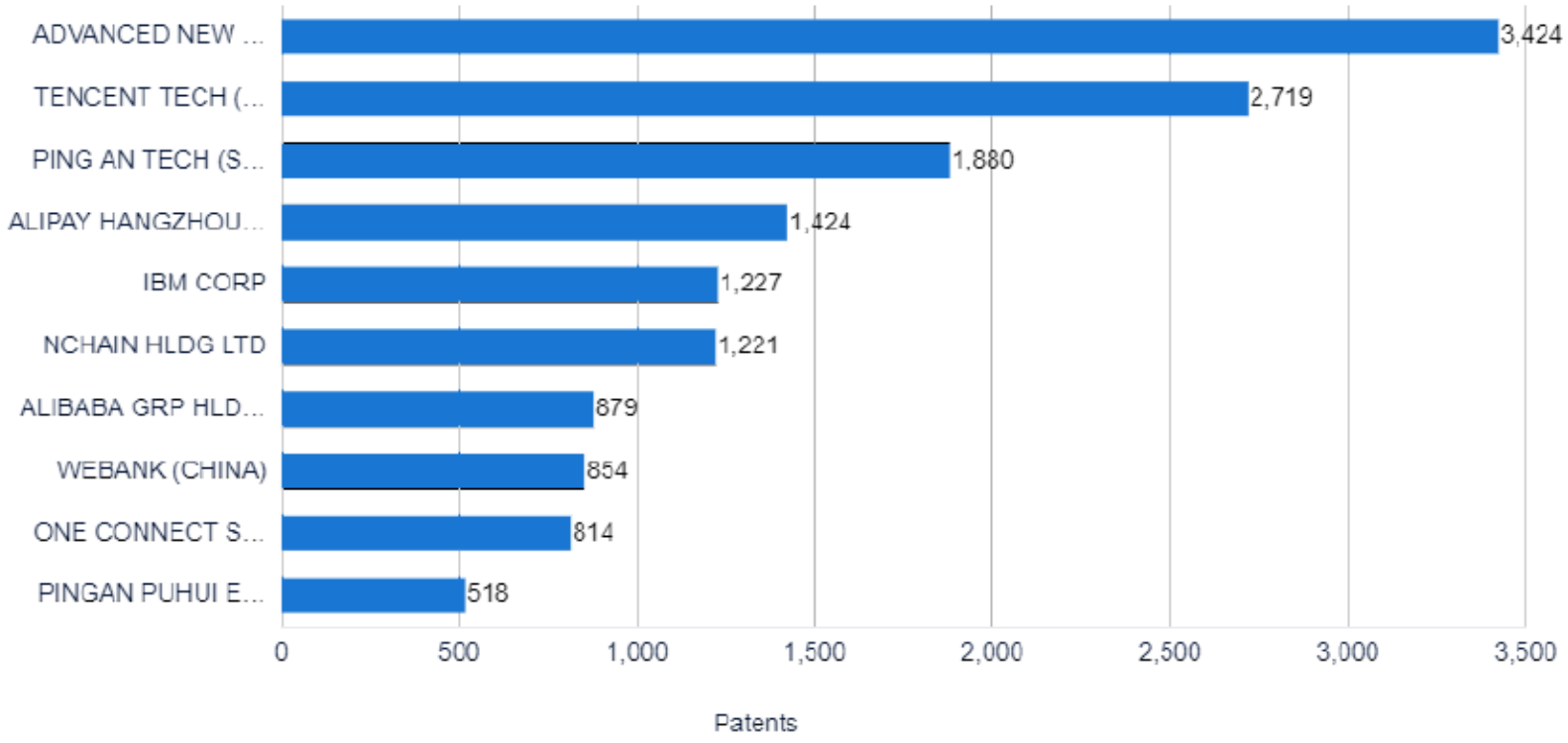
Top Assignees



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Technology Focus of Top Assignees

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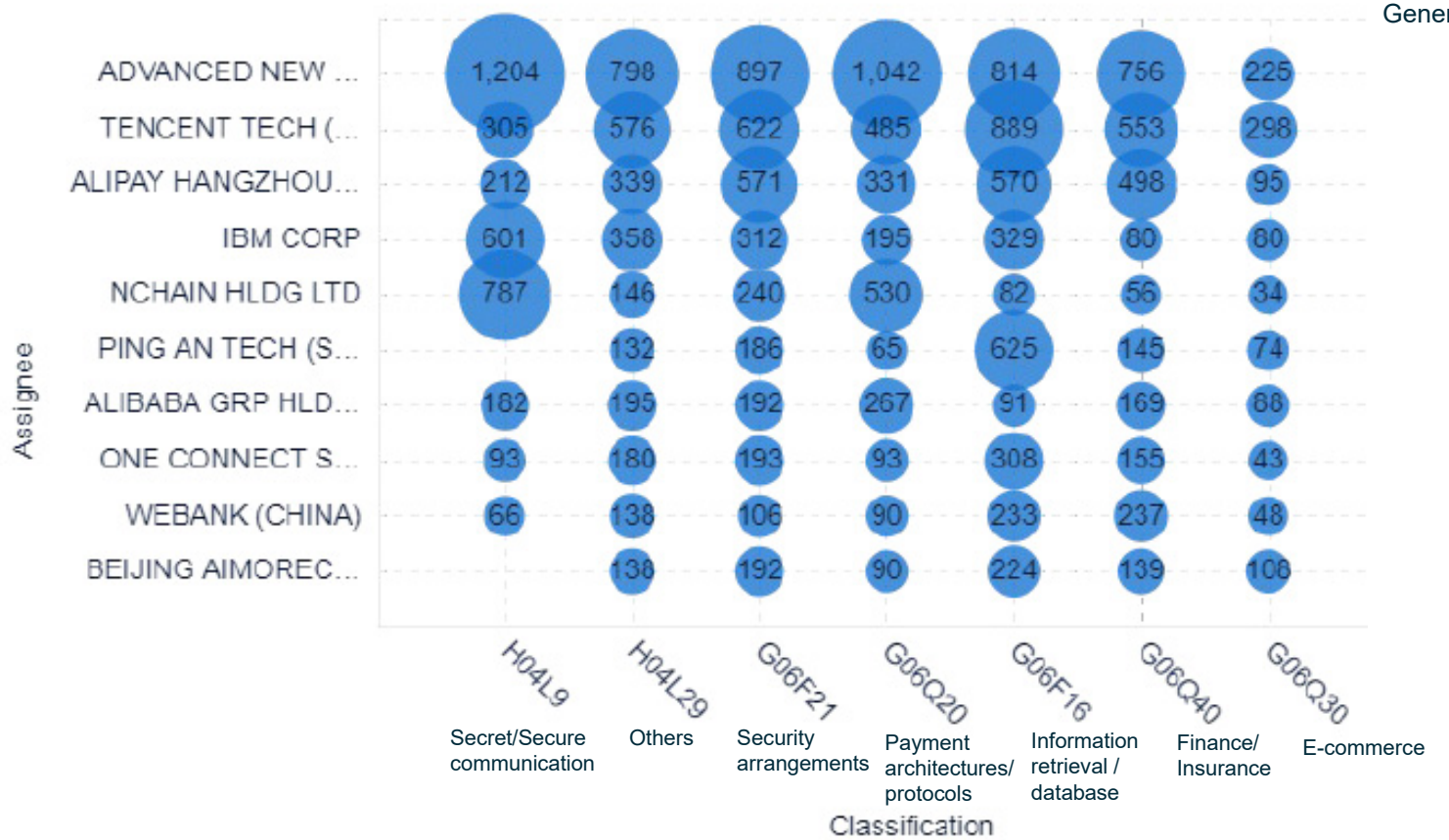

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Litigation Trends

- **Very limited data on litigation of blockchain patents**
- **In 2008, *Tik Tok Video v. HuoPai Video* created judicial history in China by accepting the first blockchain evidence**
- **In June, 2021, China's Supreme People's Court (SPC, China's highest court) issued Online Litigation Rules for People's Courts**
  - Presumed authenticity of technically verified blockchain evidence

Thank You!

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