

Escrow

1. Freelancing disputes.
 - a. The client puts a deposit corresponding to the value of the task to be performed by freelancer. If everything goes well the client allows the deposit to be transferred to the freelancer. If the client and the freelancer do not agree whether the task was completed or not. Kleros determine whether or not the task was completed. If it was the funds are transferred to the freelancer. If it was not the client is reimbursed.
 - b. - Alice hires Bob to make a website.
- Carl hires Dan to make a company logo.
 - c. Chronobank.
2. Video encoding quality.
 - a. A network provides rewards to participants for encoding videos. Participants can challenge the quality of videos. If this happens, Kleros jurors watch both the original and the newly encoded video and determine whether the videos and video quality are correct. If they aren't the encoder loses a deposit. If they are, the challenger loses a deposit.
 - b. Alice uploads a video to a decentralized streaming service. Bob runs machines to encode videos. Due to a peak of encoding demand, Bob set up his encoding algorithm to a low quality version. Carl who saw the video challenge its quality.
 - c. Livepeer.
3. Development bounties.
 - a. Parties put up bounties to reward developers who would build specific features. When a feature is built, the developer claims the bounty. If the bounty creator or another developer claims that the bounty claimer work does not fulfil the specifications of the bounties, he can challenge the payment.
 - b. - Alice pays a bounty to anyone who would solve an image alignment problem on her personal website.
- Bob puts a bounty for creating a [Merkle signature](#) library.
 - c. Gitcoin.
4. Bug bounties.
 - a. Manager of software development projects put bug bounties to be paid to anyone who would report a bug to them. First bug reports are hidden and managers can accept a bug report which transfers funds to the reporter. If the manager claims the report is invalid, the reporter can publish the report and have jurors decides its validity.
 - b. - Alice puts a 100 ETH reward to anyone who would find a bug allowing to steal the money of a DAO contract she created.
- Bob sets a reward to anyone who would be able to access his user datas without user consent.

- c. Solidified, Bountyone.
- 5. Milestones to release funds in crowdfunding campaigns.
 - a. Project managers pledge to make a product and set up milestones. Each milestone release a specific part of the funds raised in the crowdfunding. If milestones are not reached after a deadline, funds are reimbursed to contributors. Kleros solves claims of milestone completion.
 - b.
 - Alice raises 3M\$ to make a 3D laser cutter. The first 1M\$ is unlocked upfront. The first milestone is to be able to show a functioning prototype (500k\$), the second a production ready version (1M\$) and the last one to ship the laser cutters to contributors (1M\$). After 3 years, contributors can get the remaining of their money back if milestones are not met.
 - Bob set up a crowdfunding to develop a new scalable blockchain. It has 3 versions, each with transaction per second metrics. Each version is a milestone.
 - c. Kickstarter-like platforms, Token sales.
- 6. Inter-chain exchanges.
 - a. Traders can use an escrow contract to exchange a cryptocurrency against another. The first trader sends the fund of chain A in the escrow contract and provides an address on chain B. The second trader sends the funds of chain B to the address provided. The first trader unlocks the funds to trader B. Dispute can arise whether the transaction on chain B was made.
 - b.
 - Alice gives 1000 ETH to Bob in exchange of 32 BTC.
 - Carl gives 10 000 ETH to David in exchange of a specific balanced portfolio of the other main cryptocurrencies.
- 7. Website integrated payment.
 - a. Websites can display paiement buttons allowing their customers to make escrow payments. If customers do not receive goods and services they should have, they can request a refund. This allows people to make online purchases without trusting the seller.
 - b.
 - Alice is a merchant accepting escrow paiements in DAI. Bob never heard about Alice business before. He orders 10 pairs of alpaca wool socks.
 - Malory makes a website to sell tickets for "the best party on an island ever" despite knowing he won't be able to organize a decent event. When Dave comes to the island party, not even half of the features which were promised are there. Dave asks for a refund.
- 8. Micropayment instead of advertisement as an web opt-in model.
 - a. Users can install a special plugging and fund their account. Websites of the network doesn't display ads to users of the network. Users of the network make automatic micro-payments (via state channels) to the websites of the network they visit. Users basically buy-back their own ad space (pay a micro fee instead of viewing an ad).
Websites can enter the network by putting a deposit (given back when they leave).
When a user notice that a website he paid for still display an ad, he can report it

- and claim the deposit of the violating website.
- b. - Alice browse the web at a cost of around 0.001 cent per page without getting disturbed by ads.
- Bob makes a website, register to the network but still display ads to network users. Carl reports Bob's website.
- 9. Disputes in damaged goods in e-commerce
 - a. Party A sells a good to Party B which is delivered to its home. Party B sends the funds to an escrow. When the good arrives, Party B claims its defective and ask Party A to send a replacement. Party A refuses. Party B creates a dispute. Both parties send evidence. Jurors decide.
 - b. Alice buys a lamp from Bob. She claims it doesn't turn on when plugged to AC. When the dispute starts, Alice records a video of the lamp which doesn't turn on when plugged (the video clearly shows that other lamps do turn on when plugged to the same plug). Alice wins.
- 10. Insurance
 - a. Party A offers to loan Party B their car for the week. The car has road legal insurance but the owner wants to create his own insurance policy using escrow. The lessee pays X amount into the escrow which will be returned on condition the car is in the same state as it was when loaned.
 - b. Any form of lending can be covered under this use case. Party A loans Party B their Telescope / Laptop / Netflix account / Etc

List Curation

- 11. Moderate video with profanity or non-safe-for-work content.
 - a. Video platforms can require users to tag videos containing profanity or NSFW content. Users can opt-out of content containing profanity and opt-in for NSFW content. Users seeing videos they are not supposed to see can challenge those.
 - b. - Alice submits a video where she plays an online card game. When her opponent plays the only card making him win, Alice shouts "Fuck you!". Alice does not put the profanity tag when uploading the video.
 - Bob submits a fan made video of his favorite porn star including pornographic scenes without putting the NSFW tag.
- 12. Avoid plagiarism in content (article, video and music) platforms.
 - a. Platforms can require content to be original. This is particularly important if they reward people submitting content. When plagiarised content is submitted, the rightful creator of the content can challenge it. If the content is ruled to be plagiarised, the submitter loses a deposit and all rewards associated with the

content. Challengers would need to pay deposit that they can lose if their claim is considered frivolous (this would prevent this kind of [extortion](#) currently happening on youtube).

- b. - Alice submits an episode of Game of Thrones on a video platform. The video is challenged and jurors rule the content not to be original.
 - Bob submits a recording of his song The Good Old Life. His neighbour Chuck who does not appreciate Bob's singing talent challenges the song in order to bother Bob. Jurors rule the song to be original and Chuck loses his challenge deposit.

13. Removing fake files from torrent networks.

- a. Users choose a name and a description for the files they seed in torrent networks. Users uploading files put a small deposit. Users can challenge the content of the files.
- b. - Alice seeds a file named "*Open Space Program*" (an open source video game). However the file contains the "Civilisation V" video game.
 - Bob seeds a file named "Cyrano de Bergerac (movie)". The file contains the "[Never Gonna Give You Up](#)" music clip.
- c. Torrent-Paradise

14. Fake-news detection.

- a. Publisher networks can have rules preventing users from posting fake-news by requiring a deposit. In case of doubt, not penalizing the poster seems the right thing to do.
- b. - Alice makes an article giving "proofs" that the president of the European Parliament is an Illuminati.
 - Bob publishes an article refuting the fact that the Venezuelan National Guard shot dead a protestor. Video evidence is provided by challengers.

15. Mail antis spam.

- a. Email senders set up a deposit proportional to the amount of emails they want to send per month. Emails sent this way are never filtered through spam filters, but would an recipient consider a message spammy, he can create a dispute and win part of the sender deposit if the email is ruled as a spam. The same process can apply to any messaging or calling system.
- b. - Alice sends an email to Bob while using the deposit feature. Bob receives it even if its antis spam would have filtered it.
 - Carl calls Dave to try to sell him llama wool socks (telemarketing). Carl flags the call as spam and the jurors agrees. Dave loses part of his deposit which is used to compensate Carl for the annoyance.

16. Parental filter

- a. Users can tag (Violence, Profanity, Drugs presented in a favorable manner, Apology for Terrorism, Sexually explicit content) websites which are not suited for children with a deposit. Those tags can be challenged.
- b. - Alice browse the school library without getting the risk of seeing content not suited for her age.

- Bob tags a gore website as containing violence.

17. Smart contract description.

- Users can submit explanations of the functioning of smart contracts in natural language (ex: English). Users interacting with those smart contracts can read the description of the smart contract. Descriptions can be challenged and users putting wrong descriptions loses their deposit. Smart contracts with vulnerabilities generally do not describe them, so finding a vulnerability generally allows to challenge the description. This also gives a bug bounty system as a byproduct.
- Alice submit an English description of an Escrow contract. Bob who is not a developer reads this English description to understand this contract and decide whether he wants to interact with it or not.
 - Carl makes a CFD (contract for difference) which can be used to margin trade ETH and puts a description. Dave read this description and the smart contract. He finds that the contract contains a backdoor not described and challenges the description.

18. Token registry

- Users can submit tokens with their name, address, ticker and logo. Incorrect submissions can be challenged. Users can also submit badges to tokens (ex: "Follows Ethfinex listing criterions", "ERC20", "Follows [Mike's cryptosystem manifesto](#)"). Applications (wallets, decentralized exchange, etc) use this list of tokens to allow their users to select tokens without typing their addresses and to display user balances.
- Alice registers the DAI token. Her balance now shows on her wallet.
 - Bob registers the REP token. He can now easily trade REP on a [uniswap](#) fork pulling tokens from this list.

19. Review moderation

- Users can submit reviews with a small deposit. Those reviews must follow some particular rules (ex: no profanity, no extortion or bribery offer to change the score, etc). Parties can challenge reviews and gain part of the deposit of the submitter if their challenge is successful.
- Alice makes a review of a toaster insulting its creator.
 - Bob makes a review of a restaurant, giving 1 star and asking a payment of 0.01 ETH to change it to 5 stars.

20. Dapp Store

- An application store for decentralized applications. Dapp developers can submit their applications including evidence attesting that their dapp follows the dapp store guidelines. Dapp developers need to submit a deposit (which is only reimbursed if they pull out their dapp). Dapps can be challenged either for submitting incorrect evidence or because of serious bugs.
- Alice submits a "Decentralized Exchange" dapp claiming it to be non custodian. Bob notices that the exchange is custodian and challenge the app.
 - Mallory found a bug and in Carl collectible dapp. He uses it to steal collectibles. Daniel challenges the collectible dapp due to a serious bug.

- c. State of the dapps.
21. Token Registry
- a. A registry of tokens with their name, ticker, network address and symbol. Submission requires a deposit and challengers can earn part of the deposits of incorrect submissions. This can be used in dapps like decentralized exchanges, exchanges and wallets.
 - b. - Alice submits [this token](#) as “Kleros Token”. Bob notices that [this](#) is the real Kleros token and challenges the submission.
- Carl registers the [PNS token](#) which has mildly offensive symbol and return 8008135 as the balance of most addresses in order to be displayed in everyone wallet. Dave challenges it.
 - c. Uniswap.

Oracle

22. Sport betting.
- a. Bettors place their bets on sport competition results. Bettors who bet on the right result split the money lost by other bettors.
 - b. - Alice bets that France will win the FIFA World Cup. She wins.
- Bob bets that Grasshopper will win the [first race of the 2018 Sand Marble Rally](#). He loses his bet.
23. Price Oracle.
- a. An Oracle giving the price of a currency (like ETH) in another currency (like \$ or BTC). Submitters submit price ranges and Kleros remove price ranges not containing the real value. The final value is given by taking the mean of the intersection of all remaining intervals. This can be used to update prices or to make financial contracts.
 - b. - Alice sells her car in ETH on a decentralized marketplace, however in order to avoid the price of her car to be too low or too high, she labels it in \$. When the price of ETH in \$ changes, the price of her car is automatically adjusted.
- Bob believes that the price of ETH is gonna decrease and wants to short it. A decentralized trading platform offers short options using CFDs (contract for difference). After Bob closes his short (or get force liquidated), the trading platform contract pulls the price of ETH in \$ to determine the amount Bob won/lost. Note that since the oracle is not real time, the funds are locked waiting for the oracle to return a result (but the oracle returns the price at the time the position was closed).

Other

24. Inheritance.

- a. The will maker uses an inheritance smart contract account to store his assets (ETH, ERC20, collectibles). He designs heirs to get the funds upon death. If he doesn't interact within some time, heirs can claim the will-maker he dead. Anyone can counterclaim that the will-maker is not dead (he may not be able to interact with the account because of some health issue such as memory loss or being in a coma). Kleros can rule about the death of the will maker (for example by looking at the death records). Funds are transferred to the heirs if the will-maker is considered dead.

The will maker can also make some conditions for inheritance.

- b.
 - Alice designs Bob and Chuck as her heirs. Alice loses memory due to Alzheimer's disease and stop interacting with her account. Chuck claims that Alice is dead to receive the inheritance. Erin notices it and counterclaims.
 - Carl designs Erin as his heir provided she enrolls in a college degree and attends for at least a full academic year before the age of 22. Otherwise the inheritance is to go to Frank.

25. Fight cheaters in decentralized gaming platforms.

- a. Players can report their opponents for breaking the rules of the game in online tournaments.
- b.
 - In a real time strategy game tournament match, Alice offers Bob 1000\$ to concede the match (bribery). This offer is made in the in-game chat.
 - Carl runs a cheating program allowing him to see through wall in an online First Person Shooter game. The recording of the game shows that Carl consistently throw grenades to opponents he should not be able to see.

26. Auto-promises

- a. Users can make promise with themselves by putting stake. If they don't fulfill their promise, a part of their stake is burnt and another part given to a promise challenger.
- b.
 - Alice promises to herself that she'll go to gym at least 40 times in the 2019 year. She has to upload a video of herself with the journal every times.
 - Bob promises to himself that in 2020 he will raise a guide dog puppy for a locate association.

27. Promises to others

- a. A party can promise to do (or not do) an action and put a deposit. Those can be conditional.
- b.
 - A food multinational corporation promises that it will stop using palm oil by 2020.
 - A politician promises to give up his local mandate if he is elected in the parliament.

28. Blockchain / Real life Identity Disputes

- a. Bob claims his identity is being used by someone else to take out fraudulent services with blockchain based platforms. Kleros jurors assess the evidence and rule in his favour. The false identity is deleted and Bob's real identity cleared.

b.

29. A justice system for a decentralized VR world

- a. Party A and Party B are citizens in a decentralized VR world like Decentraland. Party A claims that Party B is having some inappropriate behavior. Party A sues Party B in the justice system of the VR world. The jury decides and the losing party loses reputation points.
- b. Bob accuses Alice of cybersexual misconduct. Alice presents a message signed by Bob where he allegedly consents to the sexual intercourse.

30. Translation freelancing

- a. Payer post texts to be translated along with a minimum and maximum payout. The price of the translation starts at the minimum price and increases up to the maximum one over time. At any time, a worker can start working on the translation by paying a deposit. The worker has a deadline to submit the translation, if the deadline is missed the worker loses its deposit to the payer. Once the translation is submitted, anyone (including the payer) can put a deposit to challenge it. If it is challenged it goes to Kleros jurors to determine if the translation is correct or not. If ruled incorrect, the worker loses its deposit to the challenger. If correct, the worker gets paid.
- b. - Alice posts a 1 page long passage of the "A Clockwork Orange" to be translated from English to French. Bob translates it.