ASSIGNMENT #1

CSBC1020 – Blockchain Applications for Industry

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Question :

Would Blockchain be an appropriate technology for a ride-hailing network like Uber? Give your reasons why or why not; if yes, what kind of blockchain would you suggest: private, public, or consortium blockchain?

- To answer this question, first, we have to understand what a ride-hailing system really is. A ride-hailing system refers to a system that connects passengers with drivers for hire through an app or a website. It is also known as ride-sharing, e-taxi etc. These drivers for hire, cannot be legally hailed from the street.

Uber is the most prominent of these ride-hailing networks. Systems like Uber work through a centralized entity that matches a driver with an individual that requires transportation. This centralized entity controls the whole process; meaning that any agreement between the parties can be modified or the process can be dictated by a centralized command that holds most of the power; which of course in turn may lead to abuse of authority. Below are some disadvantages of such a system in the long run:

- Centralized authority means any one person or a group of people can alter the rules and regulations to their benefit; rendering the system unfit for financial progression.
- Centralization confirms that such a system has a single point of failure i.e.: if the central command fails, the whole system crashes.
- The transaction(s) taking place between the driver and the passenger is established through the central command, which enables them to acquire a larger percentage of the transaction as they wish; mostly unfairly.
- Such a centralized system could only end up benefitting the owners/shareholders. Rather than all parties involved (also the drivers, riders). To have a sustainable business model, it is ideal to plan and implement a system thinking about the benefit of every participant.
- Unpleasant occurrences between drivers and passengers will be impossible to eradicate if the system is not secure.

From the arguments above we can safely theorize that a ride-hailing system can be improved drastically by implementing decentralization. Blockchain technology should be an ideal and sensible next step for this industry. By having a decentralized system that connects a driver directly to passenger, most of the financial hurdles in this system can be overcome. However, to implement this technology, the system needs to be revamped in order to carefully vet each and every service provider and enlist them as verified.

Below are some of the potential advantages of having a decentralized ride-hailing system:

- ✓ Uniform set of rules and regulations that must be followed, for every concerned participant in the system. This ensures that no one can adjust the system to benefit themselves.
- ✓ Upon receiving a request, blockchain would filter out the suitable service providers (drivers) and their ratings for the said request- which massively reduces any chance of mishaps and shady occurrences.
- ✓ There could be a simplified hash verification to be performed by each passenger prior to getting in the vehicle.
- ✓ Transactions would be processed in a P2P network; ensuring fair distribution of currency.
- ✓ No single point of failure
- ✓ Smart contracts between concerned parties will maintain security and transparency during a transaction.

Applying blockchain technology on a system like Uber will surely increase its usefulness. It will reduce disruptions and make the process flow freely while upholding data security and transaction integrity. With blockchain, there is no need for intermediaries; which is bound to save expenses and time. The confidentiality and security of data would require constant updates of the database functionalities. The central control over the whole platform will be negated.

In my opinion, a *permissioned* public blockchain system would be the most suitable for a system like Uber. A permissioned public blockchain would allow anyone to join the network after their identity and role (Driver/Passenger) is defined. In such a system, there's no single point of control. The drivers and riders can be a part of the same network and achieve a uniform consensus when triggered by a transaction. No shady business, no extra charges and no unfair cuts. I would also suggest attaching a verification method (hash code/QR code) for all users, in order to wrap the system around with an additional safety net.

References

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