Blockchain Explained for Car Lease

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The common definition of Blockchain is a technology for a new generation of transactional applications that establishes trust, accountability and transparency while streamlining business processes.

> *"A **blockchain**—originally, "**block chain**"—is a distributed database that maintains a continuously-growing list of records secured from tampering and revision. Each block contains a timestamp and a link to a previous block" Wikipedia*

Why it is so secure and complicated to hack?

Blockchain = a distributed (shared) append-only ledger, where each node in the network has the same copy of it. This ledger contains references to every transaction that has ever occurred on the network which is secured by the mining network, which validates and confirms those transactions. The ledger is publicly viewable via a 'block explorer' to prove that a transaction took place or that an address (public key) has a certain balance, however encryption keeps that information obscured in the form of hashes and hash pointers. Because the ledger is shared and encrypted, any attempt to alter the data inside of it would require an attacker to simultaneously hack each node of the network and overcome the encryption. Even if it could be attacked, due to the nature of hash functions, the tampering would be evident

Practical applications of Blockchain technology

It is a design pattern made famous by bitcoin, but its uses go far beyond. With it, we can re-imagine the world's most fundamental business interactions and open the door to invent new styles of digital interactions. It has the potential to vastly reduce the cost and complexity of cross-enterprise business processes. The distributed ledger makes it easier to create cost-efficient business networks where virtually anything of value can be tracked and traded—without requiring a central point of control.

This video explains generic car leasing process and advantages of using blockchain

technology in a process between multiple parties

The interesting twist to the end consumers would be releasing the true power of the BlockChain called **"Smart Contract"** which is relatively hidden:

Let's say you have bought a car under the terms of a finance lease. On an ongoing basis, you pay your repayments every month without fail; the finance company is happy. Lets now say you lose your job and you fall behind with your payments, and you default on your contract. The car can be programmed automatically within its own operating system to recognise that **IF** you have not paid your repayments **THEN** it can automatically **STOP THE CAR** from starting in your own driveway. The location of your driveway is picked up from internet based sensors within the car that are GPS enabled. The smart contract automatically locks the car for your key. The repossession agent, on the other hand, has a key that is automatically programmed that should the repayments not be made, give him access to the car to drive it away. No middlemen involved - it's all just programmed automatically in the form of a smart contract programmatically built into the car, the keys, the payment systems and the locks (based on Tim R. Lea articles)

IBM is part of the Linux-based Hyperledger project, offer "Blockchain as a Service" for developers to use within the IBM Cloud via a platform (PaaS) called BlueMix. More information and examples you can find at IBM Blockchain, and you can Try out IBM Blockchain now

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