**How could the blockchain disrupt the telecommunications industry?**

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To see this, we must first know how the telecom industry is *already*beeing disrupted:

The telecom industry has traditionally **controlled the whole value chain.**Voice calls and text messages have been the **cash cows** and these are "sold" by the providers.   
Through the sim-card they also control**which cellphone network you connectto**, and they have traditionally owned these cellphone networks.

Today, many "virtual" providers sell you a sim card and have it connect to someone elses cellphone network, depending on price and availability. In that case, a single telecom provider no longer own the whole value chain. At the same time, apps such as Viber, Whatsapp, Skype, Facebook etc has taken over the voice and text communications. Now the value chain is broken into **three**pieces.

More disruptions will come. There is no reason for the sim-card not to be replaced by software in the phone, something Apple and others have looked into. In the future, you may buy an iPhone and Apple negotiates its connection to the cellphone networks. Your phone can switch networks depending on price and available capacity on a minute-by-minute basis, creating a more efficient market. This has several effects:

* "virtual" providers go out of business, being outcompeted by Apple, Samsung etc.
* Network providers see their profits dwindle in a more efficient market dominated by a few professional customers.
* Telecom lose its last contact point with the end-user.
* The sim-less phones will transmit voice and text exclusively as data, this being cheaper.
  + Expect Viber to be bought up by one of the major phone manufacturers.
  + The network providers will focus on pure packet-switching networks, which transmit data more efficiently than today's 3G networks where a dedicated "line" is continuously open during connections. This is already happening today.

The telecom industry is already responding by diversifying into new revenue sources. **this is where blockchain will emerge**. Not as a disruptor of the telecom industry, but as a response to the disruption already on the horizon. It's just one of many tools that telecom could employ. An example is [Verizon, which want to use the blockchain for the internet of things.](http://www.coindesk.com/verizon-ventures-blockchain-future/) Simply put, the blockchain would allow IoT devices to both perform transactions and to be tracked and Verizon wants in on IoT.

Future uses of the blockchain in Telecom include:

* Phones roaming on different networks can be seen as "micro contracts". As explained above, roaming and autonomous brokering of prices will happen a lot more and be machine-to-machine. The block-chain, already touted as a contract-verification mechanism, could be essential [1] when Apple and Samsung's smart agents negotiate with network providers in real-time.
* The blockchain could provide immediate authentication of people and devices, which put blockchain-wielding telecom providers in the place of authentication providers for all kinds of third-party services. Todays smartphone apps that unlock hotel doors, pay your bus fare and authenticate you toward your bank is just the beginning.
* The telecom industry already wants in on micro-transactions and payment, as do phone manufacturers, as seen in the many payment solutions for smartphones, with or without special hardware. The blockchain, as a verifyer of transactions, may be a key to let telecom providers disrupt banks. (bitcoins themselves are not needed here)
* Another business niche is cloud provider. This seems far-fetched today, but who knows what cloud-niches a communications provider may fit into tomorrow

Following the telecom diversification, the blockchain is just one of many technologies that could help telecom companies transition into technology companies. This is for instance Verizon's stated goal.

There are also more far-fetched ideas floating around, such as micro-transactions allowing homeowners to set up their own base-station and run a small revenue letting neighbours connect. But this completely ignores the physical reality of needing to control the location and transmission of stations, so as to not jam each other and ruin cellphone reception for everyone. I have also been led to believe that the blockchain is too "slow" for the key exchange necessary for encrypted peer-to-peer communication between end-users, but I could be wrong.

To be fair, some see my first bullet point, roaming agreements as micro-contracts, to be the blockchains' obvious disruption of telecom. But this cannot happen without the network provider being in on it. In the developed world, it is uneconomical for a new "disruptive" provider to set up their own cellphone towers, installation costs being high and frequencies occupied.

This is why blockchain-use will be a telecom innovation, not a telecom disruption. And the "revolution" won't start until we see sim-free phones.