## Trust Transfer Function

Core concept is having trust not appear, only moved around. This is analogous to energy (or entropy, conservation of energy?).

This thought experiment is based on capacitors (but translates to heat as well). In this concept the voltage represents reputation, while charge signifies trust. When dividing charge by voltage we get capacity, which in our analogy could be seen as a measure of time or transactions.

If one has a higher reputation over a prolonged period of time, trust in this person will be higher than one with the same reputation for a shorter time, or a lower reputation for the same period.

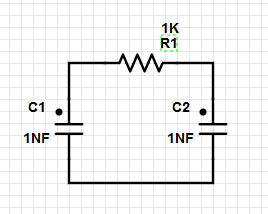
In this system reputation is transitive, transacting with reputable people, will result in a higher reputation. This also holds for the inverse, transacting with disreputable people will result a lower reputation. Reputation (just a voltage) always moves from high to low when transacting.

Trustworthiness, however is not transitive. While hanging out with trustworthy (thus, most likely reputable) people might increase one’s reputation, it says nothing about one’s trustworthiness. Only your own actions can, over time and while remaining a good reputation, increase your own Trustworthiness.

One could argue that reputation is an indication of doing the thing that is promised or asked, while trust is the confidence that the reputation is a good indicator.

The amount of reputation (voltage) transferred in this system is dependent on the number of transactions (capacity) of both parties. If one’s capacity is small (i.e. fairly new party), is reputation is very volatile as no trust has been build up. If a small capacity party transacts with a reputable party it will quickly gain reputation, however when transacting with a disreputable party it will also be lost very fast.

In the analogy of the capacitor network, every party would be modeled by a capacitor. A transaction in such a model is given below, here C1 and C2 are the transacting parties and R1 is inversely proportional to the transaction size.



After transacting reputation will have transferred from the higher to the lower reputation. However, the exact value of the voltage after the transaction for each capacitor depends on it’s own capacity (total number of transactions).

The proposed mechanism works in such a way, that after producing work for the other party, the capacity of the producer is increased in such a way that the total trust (charge) isn’t affected.

This means that if the voltage has halved then the capacity must be doubled. This means the trustworthiness of the producer did not decrease, while the trust of the other did increase.