BitTime: A time based currency

The World's First Crypto Time-based Local Exchange Trading System

http://www.bittime.org

BitTime is a complementary, time-based virtual currency, built on the principles of mutualism that helps communities connect people's needs and abilities with one another that without a mutualistic currency might go unsatisfied due to a lack of liquidity and local legal tender.

What is BitTime?

BitTime (BT) is a virtual currency similar to Bitcoin, but instead of being based on an arbitrary number of coins the underlying medium of exchange is time. Since all people naturally are aware of what an hour is there is substantially less room for speculators to distort the value and cause price fluctuations. This makes BT the first digital currency that has intrinsic value and functions as a reliable unit of account.

How does it work?

Let's say the scenario is Roger wants George to tutor his son Charlie for an hour in math.

1. George and Roger setup a BitTime wallet. They both have 0 hours (BT).
2. George instructs Charlie for an hour in calculus and assigns homework.
3. George and Roger both open their BitTime wallets on their phones.
4. Roger sends George 1 bittime (1 bittime for one 1 hour).
5. Now George has +1 bittime and Roger has -1 bittime.

In the future when George needs work done. He can either ask Roger for help or find another person in the community who is willing to accept the hour as payment.[1]

Time Banking: Today & Tomorrow

The earliest known time based banking systems date back to the early 19th century. As of 2014 time banking is experiencing a bit of a renaissance and is now in use in over 34 countries and 40 states in the USA where it enjoys a tax exempt status.

In 2009 President Obama issued a national call for greater community volunteerism. Mayor Bloomberg in response launched a statewide TimeBanking program across all 5 boroughs making NYC the first "City of Service." Since then over 190 cities have joined the network.[2]

The TimeBanking network provides everything from teaching assistance to rides to doctor appointments. This allows seniors and people with disabilities to live longer in their homes independently by participating in their local TimeBank community.[3]

The ground swell of support for time banking has largely been due to a paradigm change where instead of money activating time, people issue and control their own time. If one person's time can activate the time of another without conventional, centrally planned money, people can meet at least some of their needs by exchanging time with one another.[4]

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[1] Phenomenon (1996): Fix a Bronco, dig a well, install solar panels – http://youtu.be/ndbF2yAJHqo

[2] NYC Service – http://nyc.gov/service
[3] Lietaer & Dunne, 2013, p. 84-85
[4] Cahn & Rowe, 1992, p. 9

It also means society's "burdens" become producers.

Imagine for instance a scenario where an elderly person pays part of their medical bill with time dollars by attacking sanitation problems and monitoring sources of water pollution that cause hepatitis. That is happening in El Paso.[5]

Imagine a person with disabilities being able to pay part of their health insurance premiums by giving adult literacy classes or staffing a latchkey program for kids whose only parent has to work? That is happening in Washington DC & Miami.[5]

Economists have a reason to be excited too. In BitTime since one party takes on the positive balance and the other the negative (mutualism) the system always balances to zero. The money supply perfectly expands & contracts as needed. This is a dramatic departure from the fractional reserve banking system where money is created through perpetual unending debt at interest.

Another advantage of mutualism is it ensures there can't be runaway inflation and it also solves the problem of banks unfairly getting first and therefore greater utility from new money. BitTime solves all of these problems by simply letting people issue their own time.

What makes BitTime valuable?

Bittime is simultaneously abundant and scarce. Time – which has value unto itself – is constantly regenerated, but once it is gone there is no getting it back. Conventional paper money on the other hand only has value when it has the ability to compel others to do something for it.[6]

Why BitTime?

In an era of tight budgets, the little money time banks bring in makes it hard for already cash strapped TimeBank communities to break even. Costs run from $25,000 to $200,000 a year.[7]

The BitTime wallet software can help reduce these costs to almost zero.

TimeBanks primarily spend money to hire full-time staff to keep track of the participants' time bank balances and to match-make to find who in the community needs what. Historically, smaller time bank communities keep their records stored in spreadsheets or use handwritten paper ledgers to balance the hours. This requires considerable work and makes up the majority of the overhead. As time banks grows, the workload becomes more difficult for one banker to balance. It also means the hours are locked in to a single time bank preventing the hours from circulating in the larger economy.

BitTime automates all of the record keeping and guarantees the integrity of the balances on a global ledger that is visible to everyone.[8] The BitTime protocol has no central points of failure. Time bank websites on the other hand have to regularly pay internet service fees and employ IT staff to keep the website online and operational. In the event the time bank fails or if there is a database corruption, all of the hours logged in the system would disappear forever.

BitTime has none of these problems and is resilient against all of these forms of failure.

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[5] Cahn & Rowe, 1992, p. x
[6] Dietrich, 1900, p. 12 – "Give the most intelligent man a thousand acres of the best land and a million dollars of money, and isolate him, so that he can get none of the products of other men's labor, and he will soon work or starve. Thus furnishing the actual proof that all men are dependent on manual labor [not money] for their existence."
[7] Cahn & Rowe, 1992, p. 10 – CPI adjusted 1992 to 2014
[8] To view an example of what the ledger will look like see: http://blockchain.info

What's next? The BitTime Roadmap

The remainder of 2018 will be used to setup the initial nonprofit; to create the organizational and project scope documentation; and the remainder of the time will be spent outlining stretch goals and working on fundraising and submitting grant proposals.

By 2020 we should have at least one to two fulltime developer working on the BitTime server software, with occasional firefighting support from the BZ and BitOcean teams.

The team's overarching strategy for 2019 is to establish new partnerships, to create an all-inclusive protocol that encompasses the major features of every large time bank program, and to have the base software operational in a pre-alpha state ready for partners to experiment with and test in their organizations.

To accomplish this, for the first quarter of 2019, the plan is to establish a working relationship with several other time bank websites that are interested in integrating with the BitTime network. In tandem, the development team will begin to author the initial whitepaper; draft the planned deliverables (based on available resources); author technical documentation; and write the full BitTime protocol specification.

By the second quarter a rapid prototyping stage will begin to test the soundness of the specification and its interoperability with external time dollar systems.

In the third quarter, depending on the results from the prototyping stage, the team will hone in on and focus on how to iron out the kinks in the system. Once all the major systems are proven to be workable, development of the production software will begin after receiving signoff from key partners.

By the end of 2020 or in early 2021, the software should be in a state where all of the major pre-alpha deliverables outlined in the first quarter are operational and available through the early prerelease program for subscribers to download.

Plans for 2021 and beyond will be evaluated semi-annually as new developments unfold.

Technical Goals

The development of the BitTime wallet software is comprised of nine major components each with their own risks, involving different levels of technical expertise, and each having different time requirements. The modules will be developed in order of priority:

1. Base system (toolchain, system code, & UI)
2. Automated test framework and tools (to simulate degenerate scenarios like defaults)
3. Coin to time adaptation (mutualism) and ledger for different types of hours
4. Adding new users (multi-sig) & counter-party value swaps (reputation system)
5. Data integrity (migrating from proof of work to proof of abundance – similar but different to proof of stake[9])
6. User-defined groups and rule structures (to allow partners to differentiate themselves and protect users from bad actors)
7. Distributed match-making service
8. Interoperability (API and RPC)
9. Porting the server daemon and wallet software to additional platforms. (Android: Java, Mac OS X: Objective-C, Web-based: HTML5/Javascript, etc.)

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[9] https://en.bitcoin.it/wiki/Proof_of_Stake

Costs & Funding

  The majority of the funding that is needed is human resource related. At the start, everything will be done remotely to keep costs down.

  Mid-level programmers are paid anywhere from $75k to $105k per year. Senior software engineers depending, on their area of expertise and the number of years of experience, are paid $90k to $120k annually. Lead developers typically have the same number of years of experience as senior engineers, but because of the extra responsibilities managing the team are paid roughly $110k to $140k. Software architects and technical directors' salaries vary dramatically from $110k to $200k plus.

  To start BitTime needs one fulltime lead developer to drive the development and architecture of the software. During the course of the first year it makes sense to expand the team so there is one developer for every two modules (late 2nd quarter or early 3rd quarter would be an ideal time to hire). Once the team grows beyond a single fulltime engineer, it will be necessary to rent office space and have at least one person working fulltime to manage the administrative end of the project. Depending on location, the building costs could range within several hundred thousand per year.[10] A competent senior producer who is able to play the role of project manager, solutions engineer, sales person, and do whatever else is needed runs $120k to $300k.

  So over the first year and a half BitTime will ideally have at least $600k to near seven-figures for operations. In the absence of adequate funding, the deliverables will be reduced to reflect the team's actual capabilities.

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[10] The Best and Worst U.S. Cities for Renting Office Space – http://www.entrepreneur.com/article/227319

Who is behind the project?

Dustin Darcy has worked for over a decade as a full stack senior software engineer specializing in network technologies at a number of major game studios including Houghton Mifflin Harcourt, Electronic Arts, Pandemic Studios, and Microsoft Game Studios. Dustin has contributed to the development of Microsoft's Xbox Live network, Rise of Legends, and numerous AAA game titles. Dustin attended Stony Brook in '99 and transferred to the Digipen Institute of Technology before being hired by Microsoft to work on Age of Empires 3.

Munjal Subodh is the lead solution engineer at Princeton Blue. Munjal has a 10 year plus track record as a systems architect and sales engineer in the financial industry. Munjal graduated from Stony Brook in 2003 in Computer Science and later returned to earn a Math and Physics degree.

Daniel Kelman graduated from Brooklyn Law School in 2010 and was admitted to the New York State Bar in 2011. He later accepted an offer to work as CEO and general counsel of an ecommerce start-up. Daniel is now director and general counsel for BitOcean Japan.

Solomon Morim is a senior C/C++ open source software developer and has several years of experience developing a number of virtual currency projects.

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