Learning more about Holochain

Getting started

David Atkinson
Why would I move from Blockchain?

“Holochain has the truly decentralized, post-blockchain architecture to deliver on the hype that Ethereum could not.

That’s a very easy claim to make when you spend some time to deep-dive and compare the two on first principles. I was mining Bitcoin in early 2010 and started the 7th largest Ethereum meetup in the world in mid 2014. We’ve seen tremendous work in the past decade but the macro outcome has mostly produced new financial instruments, artificial speculative scarcities and gambling schemes to help the rich get richer.

Blockchains are a technology that fundamentally tends toward centralization. That’s a confronting statement but it’s true. One global state, one global consensus, private enterprise consortium blockchains, central bank minted cryptocurrencies; this is what Ethereum powers. Sharding, sidechains and other blockchain scaling solutions (if ever realized) are simply pushing data and computation closer to the edges. Holochain begins at the furthest edge that matters, the individual, and then facilitates emergent consensus from the bottom-up. Ethereum forces a one-size-fits-all, top-down consensus onto the global population.

While global consensus is useful for some use-cases, it’s unnecessary for 90% of the uses that first excited those who joined the crypto scene. However blockchain architecture is fundamentally incompatible with the structure of the internet itself. The internet is a peer-to-peer (P2P) network of self-sovereign computational devices communicating via free tokenless protocols. Just like Facebook, Ethereum is a monolithic centralized data and computational silo with vast economic resources attempting to infect the internet to steer her toward a narrowly defined future.

Holochain is a protocol, not a platform. It will coexist alongside the communication protocols that power today’s internet, and in doing so provide a new toolkit for developers and creators to evolve the internet as a collective organism in symbiosis with humans and nature.”

Nathan Waters
Going down the Holochain rabbit hole

- Read about holochain from our perspective: [Holochain Blog](#) & [Holo Blog](#) & [Holochain: Reinventing Applications](#) & [dApp planning: crypto building blocks](#)

- Interviews: [Holo, Holochain, and Decentralized Cooperation](#) & [Podcast w/ co-founder Arthur Brock](#)

- Watch our videos: Holochain Explained: [https://www.youtube.com/watch?v=hyCtYrHJebs&t=2s](#)

- Read external introductions to and reports on Holochain: [Unblock](#), [Good Audience](#), [Holochain : The Blockchain picks up a Dimension](#)

- Then go deeper and Read about [CEPTR](#) (Holochain is a small part) & the [Metacurrency project](#) (HoloFuel comes from here)

- Read other stuff people in our ecosystem write about: [WTF is Holochain?](#) & [What is the difference between Blockchain and Holochain?](#) & [Holochain – the perfect framework for decentralised cooperation at scale](#)
Holochain Developer Resources

Developer resource portal: https://developer.holochain.org
Core code repo: https://github.com/holochain/holochain-rust
Scaffolding tool: https://holochain.github.io/scaffold
Rust apps: https://developer.holochain.org/guide/latest/built_with_holochain.html
Example/prototype apps https://github.com/holochain/apps

Languages
All languages that compile to WebAssembly
Currently supported Rust HDK
Future support for AssemblyScript, C and C++, C#, Go, Java, Kotlin, and Clojure

GUI and other libs
Electron/Cordova https://github.com/holochain/positron
Node.js https://github.com/holochain/holochain-nodejs
Command line https://github.com/holochain/holochain-cmd
Qt/QML https://github.com/holochain/holosgape
# What are Holochain credentials and status?

<table>
<thead>
<tr>
<th>Holochain Development</th>
<th>Holo Development</th>
<th>Community</th>
<th>Exchanges/Markets</th>
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<tbody>
<tr>
<td><strong>Holochain Github Repos</strong>&lt;br&gt;Holochain: 83 repos&lt;br&gt;Holochain Rust (as 3/12/19): 8,789+ commits, 56 releases, 718 closed pull requests</td>
<td><strong>Holo Github Repos</strong>&lt;br&gt;Holo: 41 public repos (55 in total, 35 active repos)</td>
<td><strong>Telegram:</strong> 13K&lt;br&gt;<strong>Mattermost:</strong> 4.6K&lt;br&gt;<strong>Reddit:</strong> 5.6K</td>
<td><strong>HOT Token Market Cap</strong>&lt;br&gt;$0.001093&lt;br&gt;Market Cap: $145,563,564&lt;br&gt;24h Vol (Global): $1,788,756</td>
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<tr>
<th># Developers</th>
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<th>Top 10 Exchanges</th>
<th>Other Exchanges</th>
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<tbody>
<tr>
<td>Twitter:&lt;br&gt;Holo (18.9K)&lt;br&gt;Holochain (24.3K)</td>
<td>Youtube:&lt;br&gt;Holo (3.4K)&lt;br&gt;Holochain (1.8K)</td>
<td><strong>binance.com</strong>&lt;br&gt;<strong>Top 10 Exchanges</strong>&lt;br&gt;<strong>Other Exchanges</strong>&lt;br&gt;airswap.io/trade, atomicwallet.io, bitprime.co.nz, bitsonic.co.kr, cashierest.com, chainrift.com, coinex.com, coinzo.com, fatbtc.com, hotbit.io, idex.market/eth/hot, Joyso.io, liqui.io, sobit.one</td>
<td>Trading Platforms&lt;br&gt;bituniverse.org, blockfolio.com, delta.app,</td>
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<tr>
<td>Medium:&lt;br&gt;Holo (3.5K)&lt;br&gt;Holochain (1.9K)</td>
<td>Complete List:&lt;br&gt;<a href="https://telegra.ph/Holo-Exchanges-11-25">https://telegra.ph/Holo-Exchanges-11-25</a></td>
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5. Would you choose holochain or blockchain v1, v2 or v3?

| For p2p apps | **Inherently decentralised**: Blockchains are centralized or tend towards centralisation. Holochain does not impose one ledger or version of the truth onto its users.  
**Ecosystem not protocol takes all**: With no token, no global consensus and app based governance, Holochain is designed for the ecosystem to create and receive value.  
**Theoretically infinite scalability**: Transactions per second increases linearly with number of nodes, which means transactions per second *per user* remains constant. |
| For developers | Open source app framework for distributed apps (new patterns)  
Strong developer support and community  
Built in Rust and apps can be designed in Rust or Web Assembly language |
| For businesses | **Profitable**: A massive reduction of costs and a massive improvement in application performance and opportunity to access new business models e.g. pay users to run application  
**Offline**: Holochain is designed for offline transactions as well as online, you don't have to be connected to run Holochain, users of an application can continue working when they're separated from the network |
| For users | **Minimal resource use**: Because agents are only required to carry their own data plus a small portion of global data, everyone can afford to run a 'full node'.  
**Data driven**: Separate data for separate apps, Each application enjoys its own encrypted, private network with its own data space.  
**Secure and Bridge data**: I own my own data and I can use it between applications not just in one app  
**My identity**: Apps for keys, personas, & KYC so my identity is mine to manage |
General information

- Visit our website: https://holo.host
- White Paper and FAQs: https://holo.host/learn
- Review our code: https://developer.holochain.org
- Watch our AMAs: https://www.youtube.com/channel/UCSRJRJvkZHk3f1PemqT-R0g
- Join Our Community:
  - Telegram: http://t.me/channelHolo
  - Mattermost: https://chat.holochain.org
  - Youtube: https://www.youtube.com/channel/UCgfNJMIQmQ4u9oyoVlqtDQ/videos
  - Reddit: https://reddit.com/r/holochain
ARCHITECTURE
Am I clear on Holochain’s high level architecture?

**Centralised Client-Server Architecture**

- Server acts as middleman and controller for all interactions between clients
- All data stored centrally (may be internally distributed)

**Holochain Architecture**

- Holochain nodes interact directly with each other
- User data (source chains) are stored on the user’s own computer
- Holo hosts are Holochain nodes that can serve data to a client browser
Am I clear on Holochain’s high level architecture?
Am I clear on Holochain’s architecture? (vs. blockchain)

Holochain Architecture

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Blockchain Architecture

- Consensus-based DLTs act as middleman between users
- Non-critical application logic and data may be stored in centralised systems to reduce costs
<table>
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<tr>
<th>Architectural difference vs blockchain</th>
<th>Consequences</th>
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| Framework where each dApp is its own network (networks are natively interoperable) | • Network parameters customised to dApp needs  
• Governance limited to users and stakeholders |
| DAG structure using validation rules not globally enforced consensus | • Significantly greater scalability and efficiency  
• No need to introduce a 3rd party arbitrator such as a miner/staker. The community can self-manage and self-enforce |
| Agent-centricity: Data and transactions are traceable back to their participants | • Anonymity not native  
• Reputation can be built and data trustworthiness can be linked to actor (e.g. supply chain)  
• Rule violation response can be customised  
• Data read and write permissions possible |
| Senders and recipients must both sign each transaction | • Transfers to mistyped addresses time-out and are not lost / burnt  
• Receipt acknowledgement means stronger accountability (e.g. fraud, supply chain) |