

A Holochain DocuSign Challenge

HoloSign, Anyone?

Recently, DocuSign CEO Daniel Springer said it would never work to create a blockchain version of DocuSign because it would be extremely expensive and inefficient, even though the management of electronic signatures and agreements would seem to be just the kind of use case blockchain promises to address.

He's totally right. Storing all those PDFs on a blockchain would be ridiculously expensive, because everyone running a blockchain node would need to store a complete record of every document that's ever been signed. Yikes.

But a decentralized version of DocuSign would be easy to create and simple to run on Holochain. We even thought about building it ourselves just to show how easily it can be done... but then we thought a better idea would be to put it out there to our developer community, since there's a real opportunity here. If you've been wanting a tech business idea for a proven concept with a large addressable market and multiple advantages over the competition, now you have one.

Or maybe DocuSign, HelloSign, or DocHub want to get in on the action? You guys already have the UI and the integrations with other web services, so you'd just be building new data infrastructure, which Holochain makes completely secure and easy to do.

	Centralized	Blockchain	Holochain
Practical in today's landscape	✓	✗	✓
Low computation costs	✓	✗	✓
Redundant: no single entity stores all the data	✗	✓	✓
App users have a local copy of their data	✗	✗	✓
Users guaranteed to control their signing keys	✗	✗	✓
Users own their data	✗	✗	✓
Hosting becomes cheaper as the network grows	✗	✗	✓

Imagine how elegant this would be:

PDFs are stored not on a centralized cloud server, but hosted by users themselves on their own *source chains* – locally stored, immutable hash chains containing all the documents they've ever signed as well as logs of all the actions they've ever taken related to those documents (created, edited, signed, sent to so-and-so, etc.). Users will value owning their own data and having control over their identity and keys – features which are not only native to Holochain's infrastructure but also guaranteed by Holochain's [Cryptographic Autonomy License](#).

Users have the choice to install or not install a desktop app – and, later, a mobile app. (Holochain mobile support is in the future plans.)

If they install the app, they're self-hosting their data as well as shards of the distributed hash table (DHT) that serves to balance storage across the nodes of the network. The more that your user base chooses to install and run the app, the more they become a part of your hosting infrastructure, which drives down costs. So it will be good to make the app handy and friendly: easy access to all your documents at your fingertips, whether online or offline.

If they don't install the app, they sign and access documents through their web browser, the same way that most people use DocuSign and similar products today. Their documents could be hosted on the Holo hosting network, which is a peer-hosting network for serving Holochain apps and data to users not running Holochain apps locally. Web-based users would still be able to download PDFs, just as they can from DocuSign and similar today.

Documents are signed using digital signatures associated with user-owned private cryptographic keys (in addition to hand-drawn or script-font signatures), which ensures in a fully traceable way that document signatures are legitimate. The integrity of all data and operations is ensured by Holochain's peer-validation protocols.

The DHT could ensure that a solid number of encrypted backups exist at all times (maybe 25 or 50) without being endlessly duplicated like in blockchain. This way, no single entity is holding the only copies of the data. (PS – there is probably no need to store documents as PDFs on the DHT; rich text would work just as well and be much lighter.) Alternatively, documents could be stored only on user source chains for an ultra-high degree of privacy not possible in centralized or blockchain scenarios.

Holochain is free to use. Unlike in blockchain, individual nodes are not subject to a heavy computation load, and there is no need to store all the data in each node, so there are **no gas costs**.

The hosting of documents may also be a cost savings relative to centralized web hosting, depending on the market price of hosting on the Holo Hosting Network.

The bottom line: a Holochain version of DocuSign would be easy to build, would empower users more than existing products, and would be far more feasible than a blockchain version... plus might be less expensive to run even than a centralized version. Electronic agreement management is a good example of a use case that blockchain is ill-equipped to solve, and a great example of a use case that Holochain is perfectly equipped to solve.

If you do take up this challenge, let us know so that we can let the world know what you are up to!

ABOUT HOLO

Holo is a distributed peer-to-peer hosting platform for Holochain apps (hApps); a bridge to the new Internet.

Holo does to web hosting what Airbnb did to hotels—anyone can become a host by turning their computer into a source of revenue, getting paid in HoloFuel for hosting distributed applications. The Holo software runs in the background, allocating spare storage and processing power to serve hApps to the legacy web. Hosts choose what hApps to serve, set their own hosting prices, and manage their own priorities.



Holo