

U.S. Patent granted for Holochain Distributed App Framework

In a big step forward for the P2P web, Holo Limited was granted a US patent for the rrDHT networking innovations within Holochain. rrDHT is a peer-to-peer networking design implemented in Holochain that describes a system of nodes communicating according to a relaxed, agent-centric distributed hash table.

Holo is owned in full by the Holochain Foundation, a non-profit organisation based in Gibraltar, and formal transfer of this patent to the foundation will be completed this month.

You can read more about the patent (number 10,951,697) in the original documentation: [United States Patent and Trademark Office website](#).

So why file a patent?

Holochain is an open-source project - so why would we spend the time and money to file for a patent? The reality is that projects can be stopped in their tracks while using their own innovations if others are granted patents for the technology. In other words, this is a defensive patent. It is our intention to use this innovation and share it openly within the context of the Holochain open-source framework.

This patent is a critical component of the open source license used for Holochain. The Cryptographic Autonomy Licence (CAL) was approved by the OSS in 2019 and it makes Holochain widely available to not only developers, but it also protects end-user data rights. Licenses are only powerful as they relate to the intellectual property laws they are based on. The CAL's protections for Holochain and users of distributed apps built with Holochain are fully enforceable and this patent enables that enforcement both through copyright and also through patent law.

Van Lindberg, the IP attorney involved in writing the CAL and the patent application shares this:

Patents protect how innovations can be used. In our case this patent is intended to protect the Holochain open-source project from trolls who could file patents on our technical innovation and then use them to prevent us from implementing it. The patent is also a critical component of the Cryptographic Autonomy License. Licenses are only powerful as they relate to the IP laws they are based on. Having this patent ensures the CAL is fully enforceable - which means it will protect the rights of end users to have sovereignty over their data.

— Van Lindberg, Taylor English

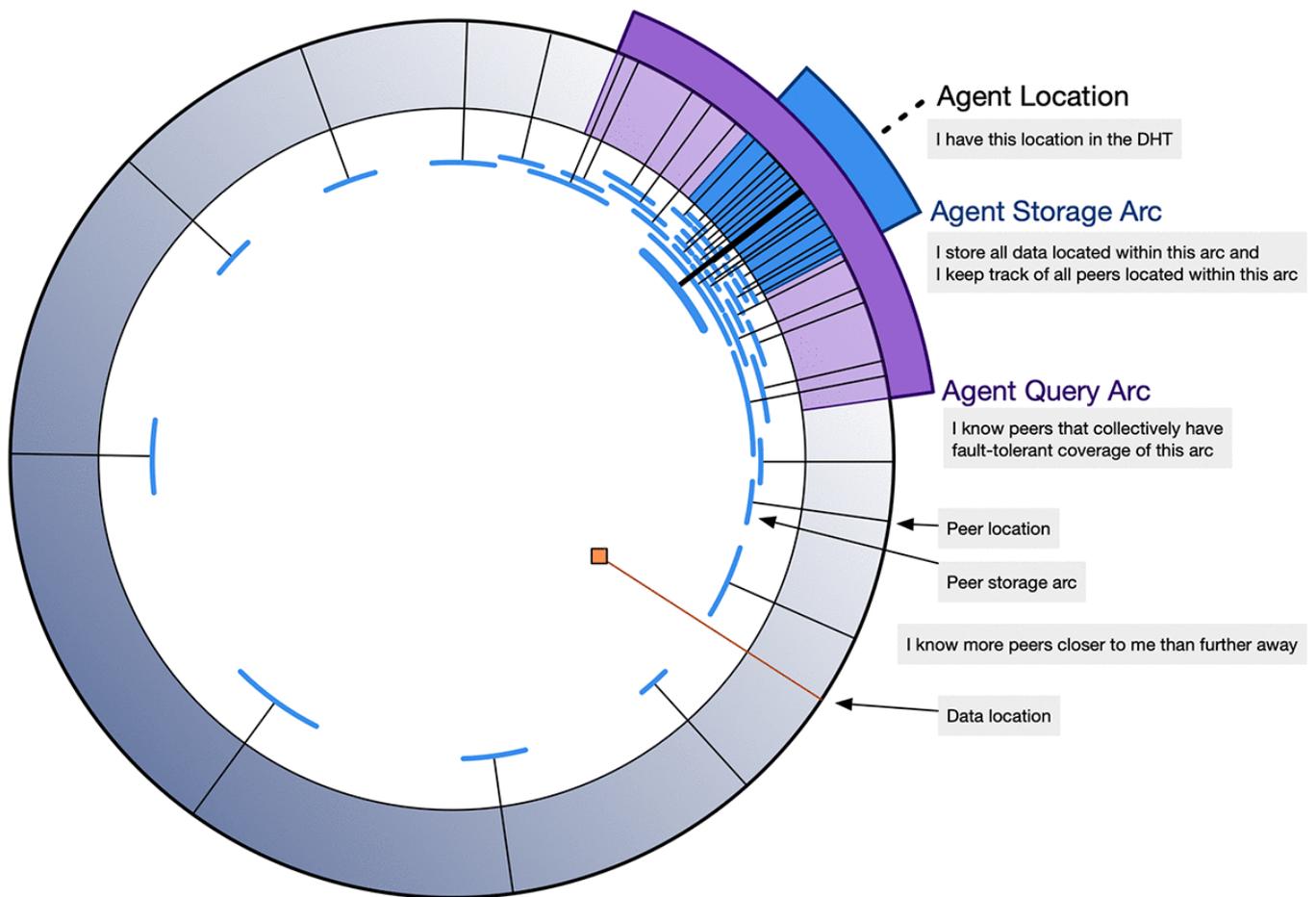
What is the technology innovation of the patent, for a layperson?

In simple terms this patent represents an easy way to represent complex distributed data models, and manage them with high resilience. While it is possible to design computing systems that don't use state, many problems--particularly those that are designed to reflect human interactions and the physical world--are easier to model when the computing system has state. The patent focuses on the methods for saving, storing and retrieving data in a multi-node computing system where no single node has a comprehensive index of nodes or content managed by those nodes.

As you can see in the diagram below, rrDHT gets efficient sharding and storage redundancy by many nodes with overlapping ranges of data they're responsible for. We get fast lookups by being able to jump to known peer addresses across the circle. And we have a simple way of representing who is responsible for holding data. This model turns out to be very efficient for managing a self-healing DHT.

The team behind Holochain and the people behind this patent

Our team and community is deeply appreciative of the work that Arthur Brock, David Braden and Jamison Day have put into this achievement. They are the authors of the innovation upon which this patent is based. Arthur is the co-founder of Holochain. David Braden is a leader on the Holochain core development team who is instrumental at implementing peer-to-peer networking innovations in the framework. Jamison Day is an architect and team lead who worked deeply with the Holochain team for several years to iterate and improve the designs.



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.

