

Web of Browsers

Browsers are de facto the most widely deployed execution environments in the world. Initially simple HTML readers, they now run complex applications interacting with humans and web services. The recent introduction of WebRTC has further extended the capability of Browsers by introducing support for browser-to-browser communication.

This turns browsers into a decentralized execution environment where interactions between human and web services are enabled without third party. This is a major evolution for privacy protection: many services can be run without a service provider.

This is a major evolution for the right to oblivion: services are powered by the browsers of participants; data and services disappear if no more participants maintain them. Finally, this is also a major evolution for scalability: millions of participants gather impressive Amount of CPU, storage, human computation resources.

The Web of browsers is a vision where the web is serverless, ephemeral and massively decentralized.

Web where pages are hosted by networks of browsers connected through WebRTC. In this vision, URIs no more refer to HTML document or Data, it refers web sessions ; a Network of browsers hosting a document.

A document can refer another document using a session URIs allowing navigation. When clicking on a session link, the user's browser joins the network of browsers, retrieves The document from one participant and can share it.

Each Web session allows real time update of document/data as in Google-doc. Unlike Google doc there is no central server and no limitation on the number of connected Browsers hosting a particular document as demonstrated in CRATE.

The Web of Browsers is quite different from the current web :

This web forgets by default i.e. if no more users participate to the web page sharing, then This page will disappear.

We think it is a good thing: remembering a page should require an effort, the loss of the information is the default.

- This web can be more respectful of privacy: no third party is required to maintain web pages.

- This web can be hosted on low-connectivity/disconnected network.

Information propagation is based on gossiping i.e it can be deployed on adhoc networks.

- This web will be real-time.

The objective of the project is to build and experiment the Web of Browsers.

We target events such as massive open online courses (MOOC), TV shows, conferences Gather larger groups. We think the Web of Browsers should allow users to edit web pages at anytime and anywhere, regardless of the number of participants. Even if only a small subset among millions of participants are writing, all participants of the editing session should be able to read and write in real-time whenever they want.

In 2013, Coursera gathered 41000 participants for a MOOC entitled "Fundamentals of Online Education: Planning and Application". However, the course relied on Google tools that only allow a limited number of users to edit simultaneously. The result was a "disaster" according to journalists. This example clearly demonstrates a useful use-case designed for large groups. Reports a similar issue in a context of massively distributed authorship.