

# Peer-to-Peer Web

A more personal web?

ART369b: Interactive Design  
and the Internet

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Class 11 — April 9

Disclaimer:

I'm a fan of the P2P web and excited about it's possibility and potential.

It's an early emerging space.

This presentation incorporates some speculation.

Don't listen to me I don't know what I'm talking about, but hope you will.



## Dat Base

DAT FOR RESEARCHERS

- **Open Data:** archive, catalogue, and share data pipelines.
- **Public Archives:** archiving public data at risk of being lost.



## Dat Protocol

BUILD CUSTOM DAT APPS

- **Live Syncing:** easy file transfers, distributed databases, p2p streams.
- **Futuristic:** private, encrypted, and peer-to-peer by default.



## Decentralized Web

PEER-TO-PEER WEBSITES

- **Beaker Browser:** browse, create, and host websites over Dat.
- **Private Sharing:** share files privately, encrypted with the secret URL.

What social site/app do you use the most?

## We are here?

Rogers Adoption / Innovation Curve

### How early are we?

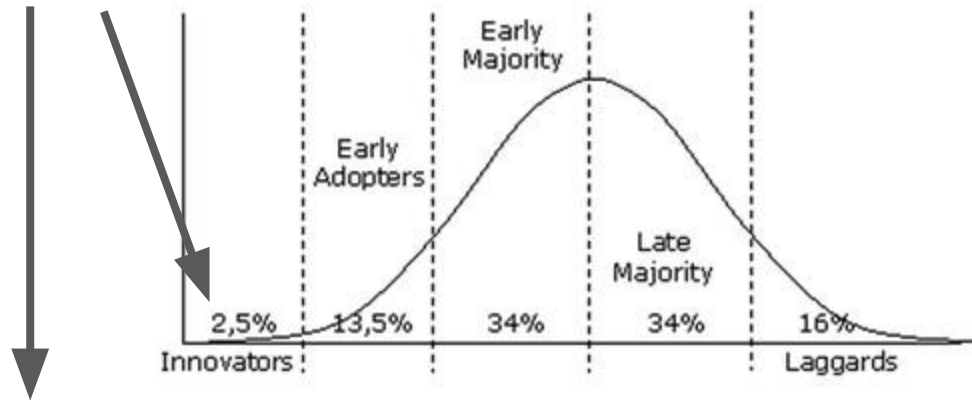
Question: How many people do you know are using P2P web and web applications?

P2P web is a very small group of pioneers exploring this space.

We can build it if we work together.

Rogers Adoption Curve:

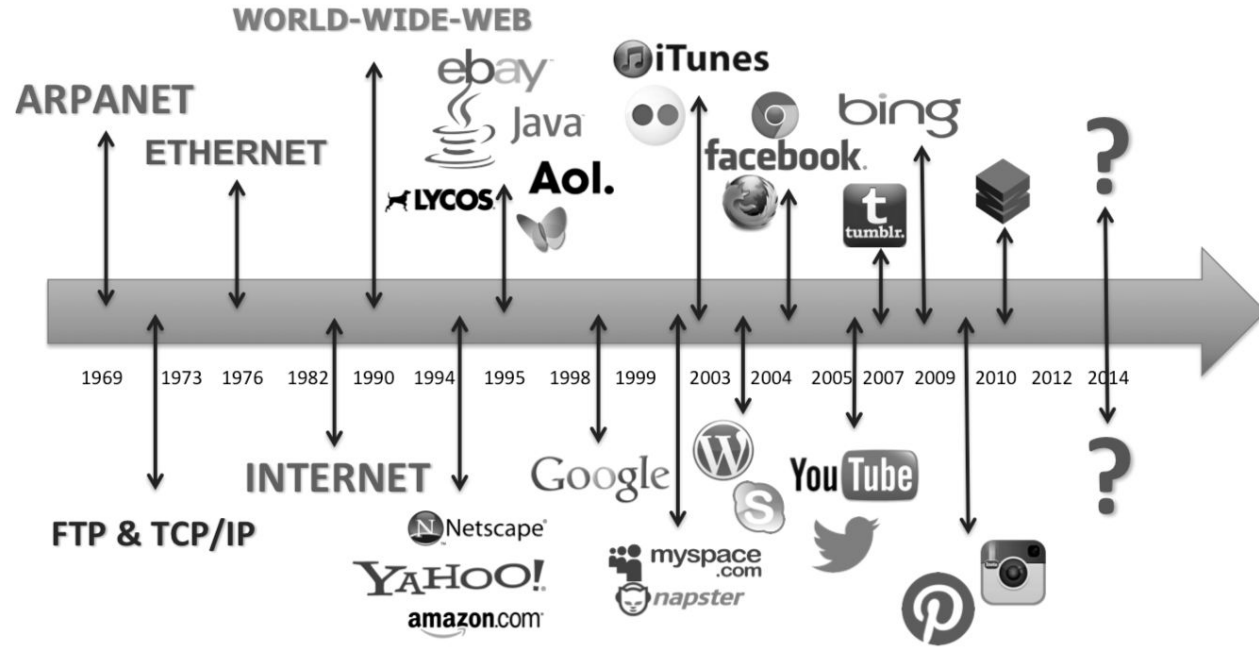
[http://www.valuebasedmanagement.net/methods\\_rogers\\_innovation\\_adoption\\_curve.html](http://www.valuebasedmanagement.net/methods_rogers_innovation_adoption_curve.html)



# Technology is slow... kinda

“The history of the Internet begins with the development of electronic computers in the 1950s.”(1)

Takes awhile to become mature and user friendly.

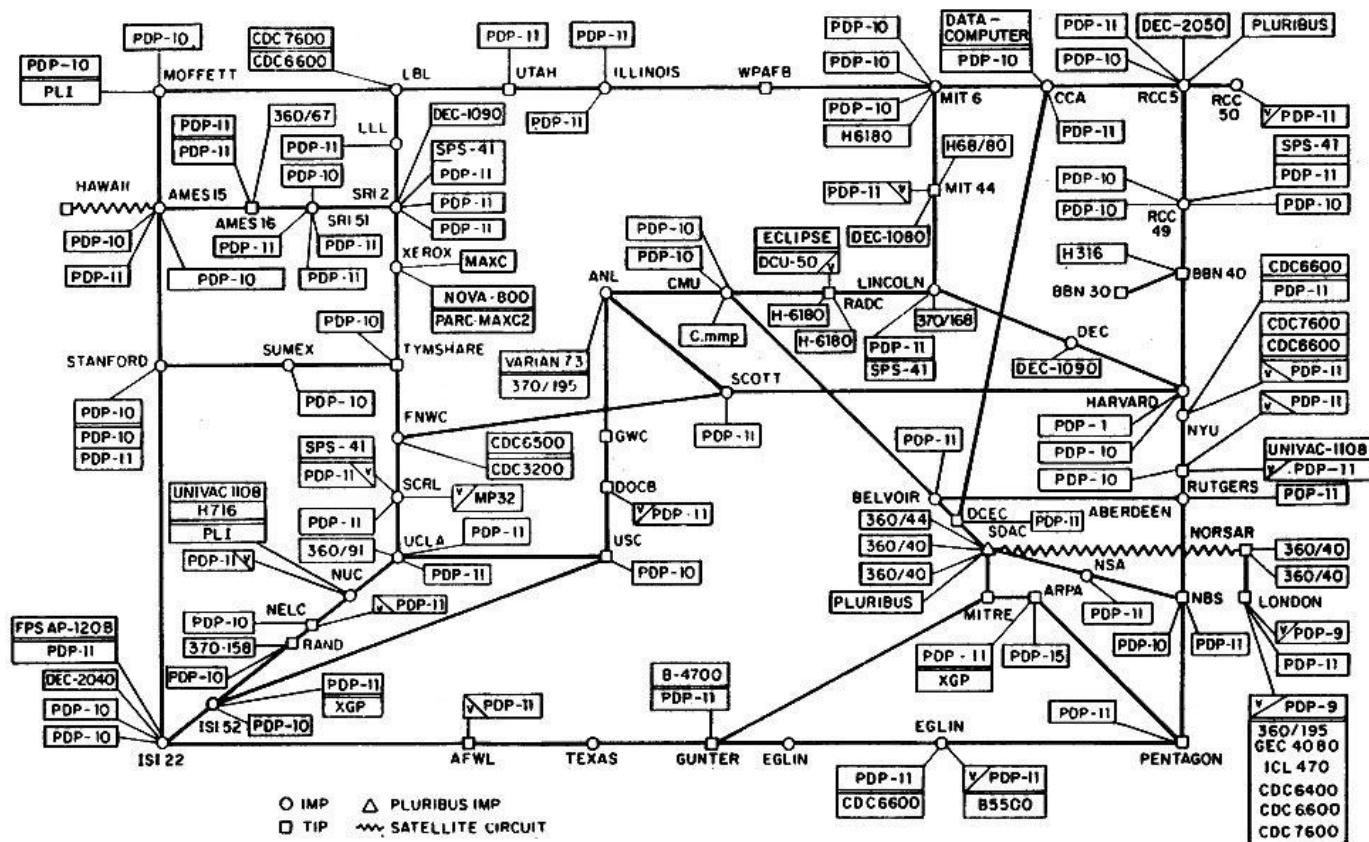


1. [https://en.wikipedia.org/wiki/History\\_of\\_the\\_Internet](https://en.wikipedia.org/wiki/History_of_the_Internet)

Image: <http://malonemediagroup.com/history-of-the-internet-timeline-an-ever-evolving-digital-world/>

What does  
Arpanet look  
like?

# ARPANET LOGICAL MAP, MARCH 1977



(PLEASE NOTE THAT WHILE THIS MAP SHOWS THE HOST POPULATION OF THE NETWORK ACCORDING TO THE BEST INFORMATION OBTAINABLE, NO CLAIM CAN BE MADE FOR ITS ACCURACY)

NAMES SHOWN ARE IMP NAMES, NOT (NECESSARILY) HOST NAMES

Image:  
<https://www.computerhope.com/jargon/a/arpanet.htm>



???

or

maybe

Alien  
Tech

=

P2P  
Web



Photo: [https://commons.wikimedia.org/wiki/File:Techno\\_alien,\\_Techno\\_parade\\_2011.jpg](https://commons.wikimedia.org/wiki/File:Techno_alien,_Techno_parade_2011.jpg)



Let's take a step back to today

# What does our current Internet look like?

"The internet works thanks to large centralized services such as server owners, cloud providers, search engines and social media. As a result, many internet giants are dominant in their respective area of the internet.

A decentralized internet promises to spread the running of these services across users. So, a number of independent machines would power services across the web."

Source: <https://www.cnbc.com/2017/11/30/bitcoin-bubble-could-lead-to-a-decentralized-internet-top-vc-says.html>

# Problem

Our current internet is poorly designed for management of our own data and thus personal privacy.

From an article posted Apr. 5th, 2018(1)

**“Facebook CEO Mark Zuckerberg today revealed that all of its 2.2 billion users should assume their public data has been compromised by third-party scrapers.”**

Context: 2.2 billion users is just over 25% of the world population.(2)

1. Zuckerberg: Most of Facebook's 2 billion users should assume their data has been compromised <https://tnw.to/xeV5s>
2. World population [https://en.wikipedia.org/wiki/World\\_population](https://en.wikipedia.org/wiki/World_population)



Materials for structural integrity are available, but not built in by default

Photo (Chair): <https://flic.kr/p/tBS42F>

Photo (Building): <https://pixabay.com/photo-2804437/>

# What is user data?

“User data is any data the user creates or owns. The term user data may be used to emphasize that the data were created and owned by the user.”(1)

## User created content (UCC)(2)

**Public UCC** might be photos, posts, comments, videos, etc.

**Private UCC** might include all the above and emails or direct messages

## Personal identifiable info (PII)(3)

**PII** might be name, age, sex, location, height, email address, phone number, friends list, likes, etc.

1. <http://www.yourdictionary.com/user-data>
2. [https://en.wikipedia.org/wiki/User-generated\\_content](https://en.wikipedia.org/wiki/User-generated_content)
3. [https://en.wikipedia.org/wiki/Personally\\_identifiable\\_information](https://en.wikipedia.org/wiki/Personally_identifiable_information)

# Data is a toxic asset

Data should be treated like toxic asset from companies that collect and store it.

In addition individuals should be cautious of creating it if it will be stored non-locally.



Old internet users like me have remained vigilant to the idea it's not safe to divulge personal details on the net, and I began using it almost 40 years ago.

redacted

Source: Data is a toxic asset - [https://www.schneier.com/blog/archives/2016/03/data\\_is\\_a\\_toxic.html](https://www.schneier.com/blog/archives/2016/03/data_is_a_toxic.html)

Screenshot: redacted

# Why does the web centralize?

**Server problem:** You need a server to upload files to the web. It's difficult to setup and manage for most. Many opt for a convenient solution instead. Uploading content with hosting services like Youtube.com or Medium.com. **This is convenient, but the result is a lot of web content being concentrated on a few providers.**

**Address problem:** Content uploaded to hostings services like Youtube make it so the address is bound to the host. Exercising choice between hosting providers takes work and once you make a choice one may tend to stick with it.

youtube.com/myvideo → vimeo.com/myvideo



# Data flows like water

Data flows to  
towards the  
easiest path and  
pools like a lake.

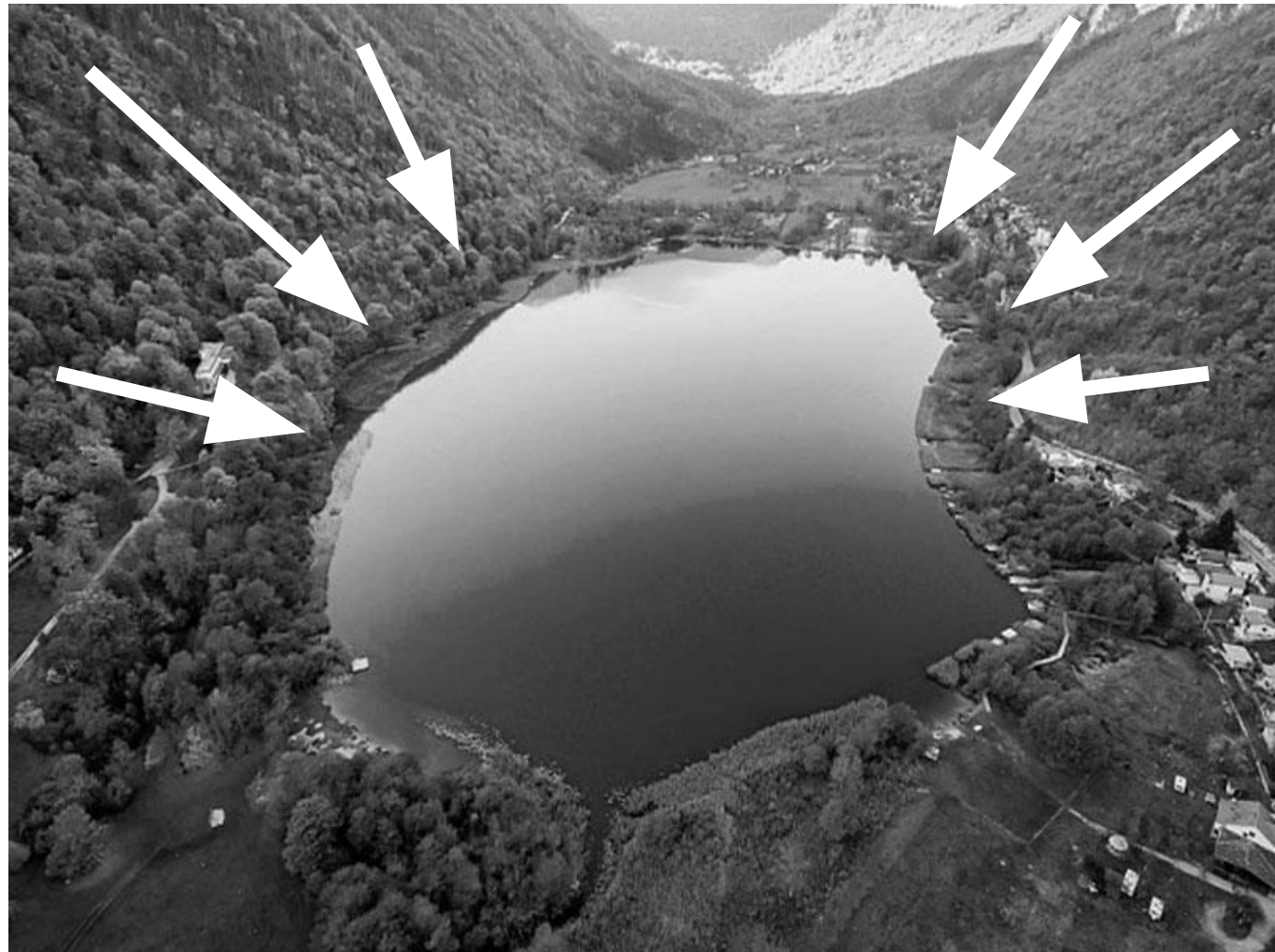


Photo: Boračko jezero,  
Bosnia - photo source  
unknown

# Another way?

Build your own internet?

[Beaker Browser's](#) goal is “moving data and user control from platforms and servers to the users device.” (1)

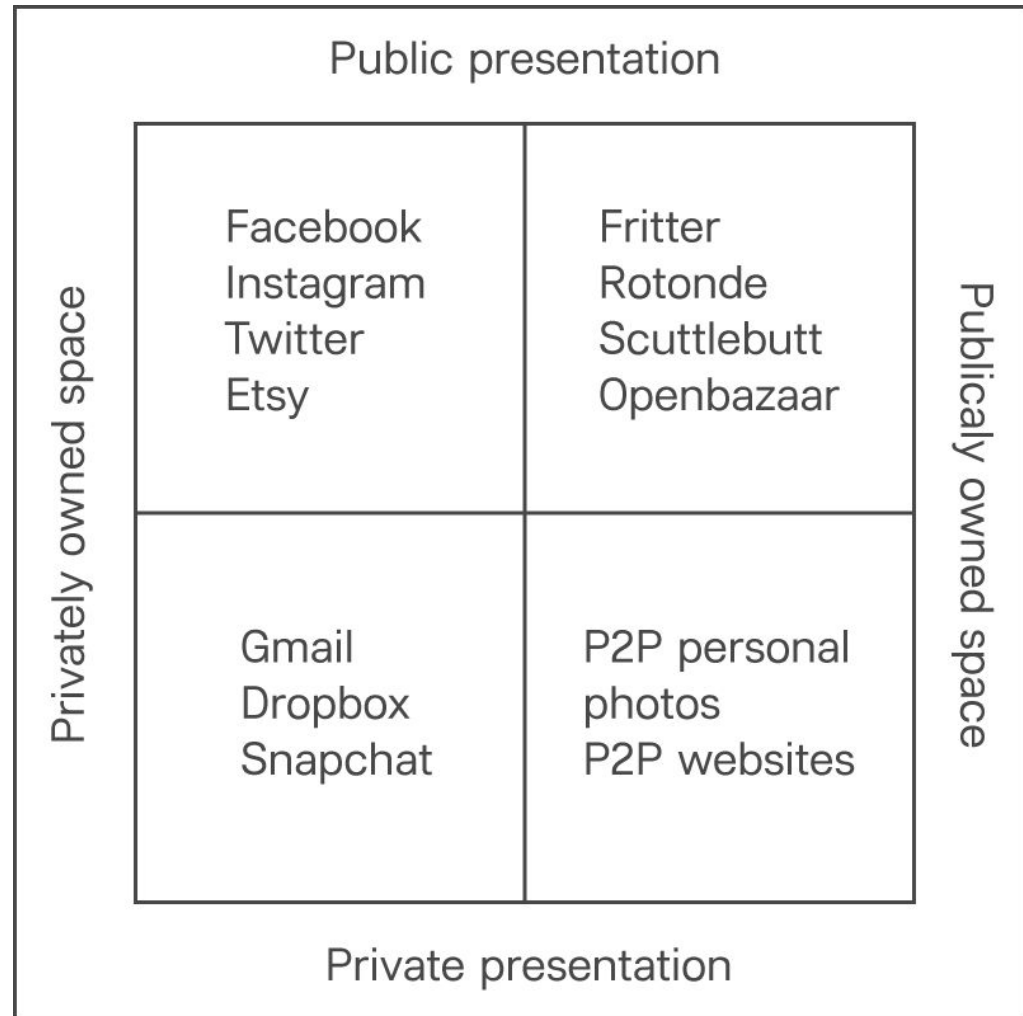
Any current website can be ported to a P2P site, but can we create something new and different for the P2P web?



1. Tara Vancil, P2P Web LA <https://peer-to-peer-web.com/los-angeles/2017-12-10>  
Photo: <https://www.creative-commons-images.com/highway-signs/s/success.html>

# Spaces

- Private life and public life
- Privately owned and publicly owned space



# Use cases

Dat is for...

- files to share with the world that you might not want to host on a server.
- people learning web development and don't want to deal with setting up a server.
- fast prototyping and could be used by web developers to share drafts of a project with clients easily.
- people who are interested in open-source as anyone who puts up a dat site can have it forked by someone else and modified.
- creating your own library of sites or information that is distributed.

More use cases <https://staltz.com/beaker-frontend-dev-dream-browser/>

# Benefits

- Offline-first applications. Applications run on the device. Less internet dependant.
- More independent publishing. An application publishes content to the P2P network, instead of to a specific host, which has the ability to block or censor.
- Privacy. User data is stored on-device, and transferred with direct encrypted connections.

Source: <https://pfraze.github.io/blog/actually-serverless>

How else might we think about the p2p web?

# What do the following have in common?

- Two French philosophers from the 1960's.
- A nobel prize winning economist.
- One of most densely populated cities ever built by ordinary people.





# All describe essence of P2P web

Network-centric ways of thinking, building, and sustaining something greater than oneself for the collective good of participants.

- Rhizome (philosophy) - [https://youtu.be/Ou\\_yikwW15o](https://youtu.be/Ou_yikwW15o)
- Elinor Ostrom - <https://youtu.be/Qr5Q3VvpI7w>
- Kowloon Walled City - <https://99percentinvisible.org/episode/episode-66-kowloon-walled-city/>

Previous slide:

Photo1: <http://www.critical-theory.com/submit-your-papers-gilles-deleuze-and-felix-guattari-refrains-of-freedom/>

Photo2: [https://www.nobelprize.org/nobel\\_prizes/economic-sciences/laureates/2009/ostrom-facts.html](https://www.nobelprize.org/nobel_prizes/economic-sciences/laureates/2009/ostrom-facts.html)

Photo3: <https://www.artbasel.com/catalog/artwork/34977/Ryuji-Miyamoto-Kowloon-Walled-City>

# Offline network examples

“**Tape trading** is an unofficial method of distribution of musical or video content through the postal system, which was prominent in the 1980s and 1990s. Although most commonly used to distribute and publicize limited-release musical demo tapes in underground musical genres such as punk, hardcore, and extreme metal, the system has also been used to distribute bootleg recordings of live concerts,[1] recordings of radio broadcasts,[2] original radio-style programming by amateur broadcasters,[3] and videotapes of underground films.[4]”

[https://en.wikipedia.org/wiki/Tape\\_trading](https://en.wikipedia.org/wiki/Tape_trading)

Continued...

## Offline network examples cont.



yhancik  
17h ago

Following

“**Fanzines** is a non-professional and non-official publication produced by enthusiasts of a particular cultural phenomenon (such as a literary or musical genre) for the pleasure of others who share their interest.”

<https://en.wikipedia.org/wiki/Fanzine>

“**Mail art** is a populist artistic movement centered on sending small scale works through the postal service.”

[https://en.wikipedia.org/wiki/Mail\\_art](https://en.wikipedia.org/wiki/Mail_art)

Replying to this post

when I had no internet access, in my teenage years in the 90s, a friend and I were making a kind of "webzine" (actually more like a blog, but we had no idea it was a thing) that we were sharing on floppy disks. So it was basically an offline blog with just two readers. So yes, I guess there is some value in tiny social networks :D



Screenshot:

dat://7c82df45eeacf7c2cf5b8d65abd9678b04c6765eb43d72f941f41f6eadbdf812/

How do you relate to the p2p web?

# What would you do?

Imagine the p2p web is like a public park or community garden.

Question: What would you plant for yourself or others in this space? A) Specific plant B) Will research and respond later C) Don't know or nothing



Photo: <https://www.pexels.com/photo/gray-concrete-pathway-besides-pink-flower-during-day-158028/>

# User types

## Indifferent

State: Less autonomy

Want: Seeks others to choose for them. Either has no idea or opinion on the matter.

Pain point: Not being attended to or having to consider making decisions.

## Supportive

State: Some autonomy

Want: Seeks opinion and information before making a decision. Open to advisement.

Pain point: Unclear or lacking of opinion or information. No option for choice.

## Individual

State: Full autonomy

Want: Seeks ways to express their ideas or vision of what they want.

Pain point: Results are significantly different than expectation or not feeling heard.

# User stories: Hairsalon example, deciding on a hairstyle

## Indifferent

As someone indifferent to hairstyles, I prefer to defer all hairstyle decisions to the stylist. I'd like a default option so I don't have to make a decision. I relinquish all administrative decision to someone else.

## Supportive

As someone supportive, I'm curious to know what others are doing or what the stylist might advise for my hairstyle. I'd like a way to get more information in order to make my choice and ability to override any choice I disagree with.

## Individual

As an individual, I have a vision of how I want my hair to look. I'd like a way to communicate my ideas with the stylist. Please let me express myself.



All jokes aside there are actually many theories and deep lore that goes back to the beginning of the internet on what p2p web actually is. Scholars, scientists, and secret esoteric guilds have all been studying and experimenting with it in greater success than others. However in the end it doesn't really matter and ultimately it comes down to you. You are the chosen one and you can make p2p web GREAT! Only you and your unique talents and abilities hold the key to unlocking it's true potential. You happen to find yourself at the start of the path before many have even started looking. Congratulations! I won't lie, this journey will not be easy and many have tried and not made it, see #notonline. It is the brutal reality of life and sometimes one must be extinguished to be reborn again. It is possible to simply leave and rejoin at your leisure. If you can and can believe in yourself, to be more, I believe in you, and p2p web believes in you. Go forth and build the internet of your dreams!

# Resources

## Tools

Beaker Browser: P2P browser with tools to create and host websites.

<https://beakerbrowser.com/>

Dat Project: P2P data sharing protocol for applications.

<https://datproject.org/>

## Social

Fritter: P2p Twitter like app.

<https://github.com/beakerbrowser/fritter>

dat://fritter.hashbase.io

Rotonde: a decentralized social network using dat.

<https://github.com/Rotonde>

Scuttlebutt: Decentralized stand alone gossip platform.

<https://www.scuttlebutt.nz/>

## Ecommerce

OpenBazaar: P2P e-commerce using cryptocurrency

<https://www.openbazaar.org/>

## Dat sites

A curated list of Dat sites:

<https://github.com/beakerbrowser/explore>

Thank you.