Build website that talks to each other
A decentralized social network revolution

This paper is a update with prototype demo to that I wrote in 2017: decentrialised social network system
project github: https://github.com/brianwchh/decentrialized-social-networking-software-system_1

Free flow of information is very important, it can save lives, if people in China had the option to flow information freely, people all over the world would already knew the COVI19 virus at the very beginning! Doctor Li Wen Liang tried to warn his relatives in a small chat group with the out break of the virus, shortly after that he was arrested for sending rumors! He is certainly one of the people in China who knew the information in the early stage, others keep silent because of they knew the big brother is watching their chat App. If only people in China had the option to choose a chat App which can overcome the Chinese Communist Party's censorship, more people could had set the alarm before Li Wen Liang! Sadly no one in China has the option so far! Tragically many many people suffering the lost of their families,relatives and friends because of that, in China only, the number is huge, but still kept confidential!

I was raised up in China, where almost every information on media is censored,so I know how terrible the consequence of brainwash is ! I know how terrible people would behave under brainwash! It is an end to human civilization ! China used to have good culture, people used to behaves more decent, but now good thing are dying out there, it has been becoming a jungle of animal world !

Freedom is not free, but free things always come at a heavy cost of freedom! That is the problem of free chat apps I am talking about !

For today's technology, we have all the necessary wheels to build a website of our own that can talk to each other ! It is just that simple : connect your website to other's, and you connect to the world. Why should people spend countless time on other's chat app, while letting your own website looks like a dull fish !

Below is an architecture of the system :
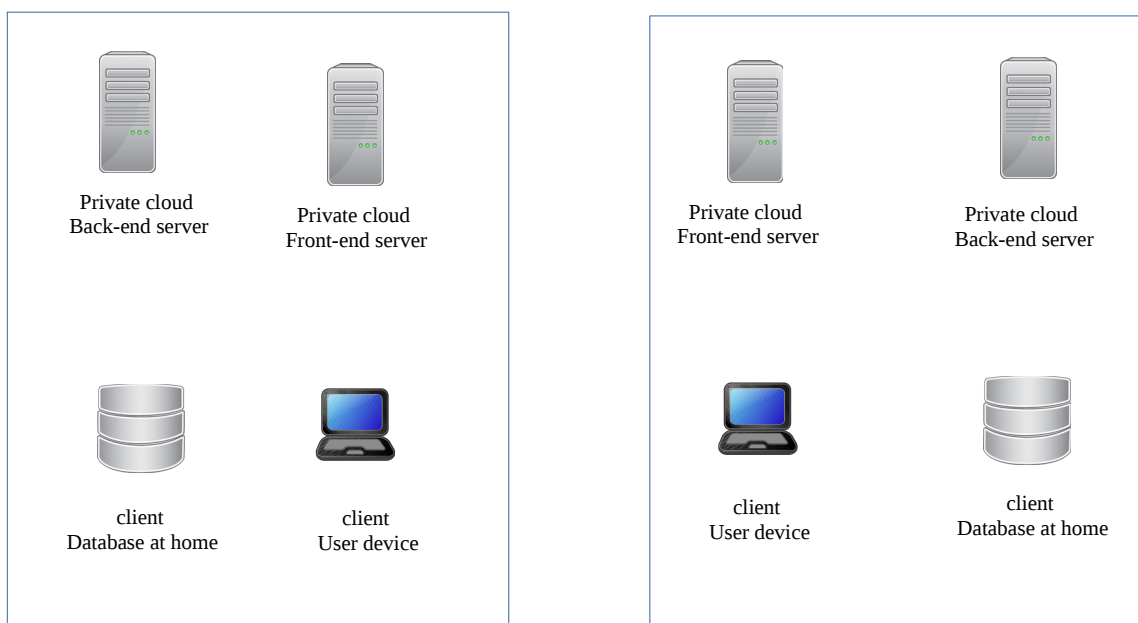
- ➢ Private cloud Front-end server
  modern SPA (Single Page Application) website use REST framework, for personal use situation front-end server can be deployed together with back-end server on the same VPS.

- ➢ Private cloud Back-end server
  Backend of REST framework . mainly do signaling between peers and store database that is intended for public access . It connects to other users via websocket for long connection, handle the get request while other user following your post or other section updates, or post request when other user wants to write a comment or something under your post.
  When connecting to other users via websocket, it is necessary to use the standard handshaking protocol, fortunately it is not complicate, we can borrow the idea from ip/ethernet protocol, but in Json format for application :

Key words	Value	Encryption/decryption

from	{
	    "ip": "xx.xx.xx.xx",
	    port: 8080,
	    username: "someone"
	}
		Standard https, private and public key pair between peer and signal(backend) server

to	{
	    "ip": "xx.xx.xx.xx",
	    port: 8080,
	    username: "someone"
	}
		Standard https, private and public key pair between peer and signal(backend) server. When the ip != my ip, encrypt the package and forward to the destination ip, if you choose to server as an relay from one of your friends to another.

type	Operation type	Standard https, private and public key pair between peer and signal(backend) server
data	P2p data,	Peer to peer customized private and public key pair

- ➢ Client database at home
  nowadays trust is more valuable than gold, but network is build based on untrusted system,so it is necessary to store your private data, like chat log, in your own place, like a small device at home, serving as database. the level of security depends on how much money you are willing to spend on your database device, and how important for others to hack, there is no absolute safe system, but it is far more better to hand over all your private data to big companies as training data for free ! In that way, these companies probably know you better than your spouse! There is a saying in Chinese: 無知者無畏, which means when you don't know nothing about danger, you are very brave! Not just in China, with current chap apps, we are all chatting with each other like a group of people running naked. When do people come to realize that I do need to cover my private spot ???!!!
  This database connects to backend server as a websocket client, and via private protocol since it only talks to your own backend server.

- ➢ client user device
  could be browser / customized app on laptop or smart phone. It connects to front-end server. If the client device behind NAT does not support webrtc peer to peer, it falls back to use his own backend server as a relay!

- ➢ ICE server, even though Google provides a lot of free ICE server, but in situation like China, most of Google's IP address has been blocked by the nasty Great Fire Wall, which sensors all the information going out and in China, we could deploy opensource TURN (traversal using relay NAT) on our own backend server, but we need to alter the code, because TURN server require 2 static IP, while our backend server mostly has only one ip address, to overcome this, we can ask the database server at home to send a request to the client device, if the client device can receive, then we know it sits behind a NAT that can works as real peer to peer, otherwise, the client device need to fall back to use his own backend server as relay to use webrtc.

- ✔ it is a good business for VPS vendor. It is a undeveloped land ! Ideally the end user just need to pay for the domain name and host service, and click next and next, the vendor will help you deploy your front end and backend on the VPS, for private home database, the vendor can also provide opensource software, end user just need to install on their own device. So it could be a layman friendly social network system.
- ✔ friends who trust each other can event share 1 VPS, while still have the option to keep their data private at home.
- ✔ Again as I said before, it brings more opportunity to the user when they maintain his website well. To follow others' posts, it is just a simple get command.
- ✔ It brings more job opp'ortunity to web developer, even though people could just use opensource, which is one of the best way to prove privacy probing free, customized website has more powerful feature, more optimized, especially when your business grows, you need people to upgrade your system to meet the traffic. For instance, if you are a self-media contend provider, you definitely need to upgrade and optimize your system.
- ✔ So it is a (user)win-(vendor)win-develop(win) ecosystem. I doubt that people have reasons not to love it and have one for their own.

In memory of the lives in heaven

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家園在眼淚裡

漂泊多時
真想能
安心寫寫代碼
胡亂塗鴉
偶爾附庸風雅

一座農舍
一杯咖啡
一盞清茶
蟬鳴鳥歡
伴着雨後泥土的清香

或許還有那麼一彎小溪
牛郎的童年
依然還在那裡流淌著
只是依然還沒有
她的下凡

遠離了那片土地
聽不到無聲的哭泣
簡陋的文字
寫不了十幾億
肚裡的眼淚