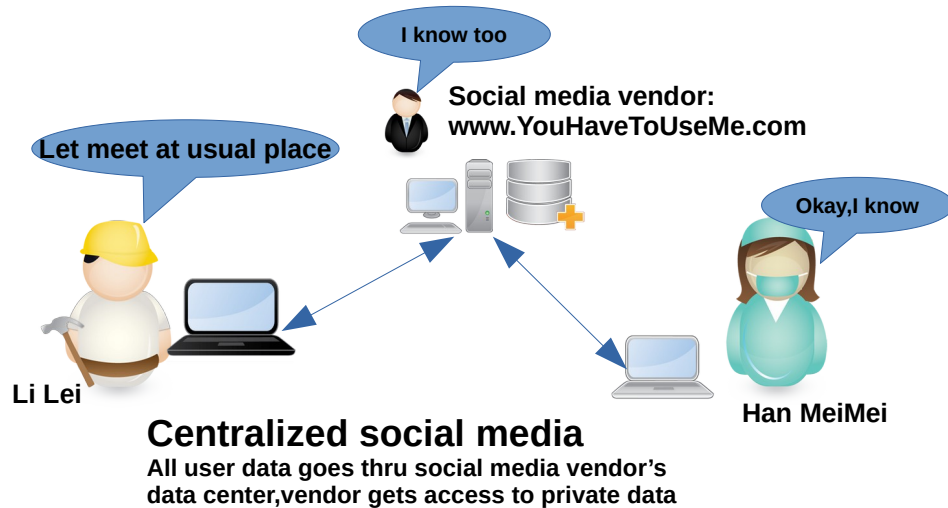


# Decentralized social media design training

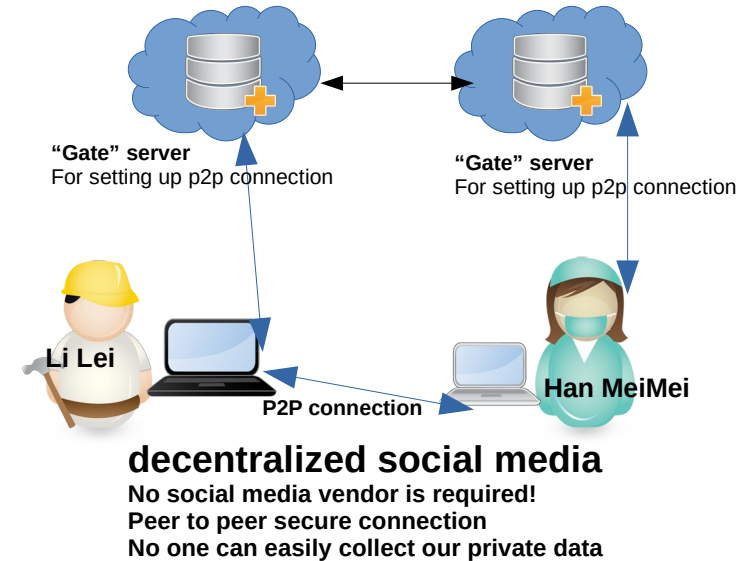
## episode 1: training intro.

# The Aim Of The Course

- Trying to establish a decentralized social media platform for everyone, so that we can connect to each other directly, as the name says peer-to-peer. Such that we protect our privacy and prevent censorship



VS



- After we finish this project you will be able to learn:
  - full stack web development for various kind of websites
  - integrating deep learning and IOT with website

# Course Schedule

- Introduction
- Part 1: Getting started with basic front-end(Reactjs) and backend design
- Part 2: peer to peer video call
- Part 3: Blog design and notification
- Part 4: photo album
- Part 5: basic video streaming system
- Part 6: Integration with NLP(Nature Language Processing)
- Part 7 : IOT, controlling demo boards or cameras at home
- Coming later: embedded device and FPGA design

# 网站已建和待建模块介绍

- <https://decensormedia.org/>

# About me

- 伍成和 ChengHe Wu, grassroot. A target of China fox hunting, looking for political asylum, need help for a job.
- Linkedin : <https://www.linkedin.com/in/brianwchh>
- Twitter: @brianwchh
- Parler: @brianwchh
- Github: <https://github.com/brianwchh>
- have been working for over 13+ years, have been working in the following fields: wireless communication algorithm design and implementation on FPGA, computer vision, deep learning, previously focusing on embedded devices using verilog HDL, C/C++, python. Recently working as web developer.
- I will be make following tutorials :
  1. decentralized social media web develop
  2. my startup project when I was in China : 3D sensor on FPGA :  
<https://youtu.be/bsx7o-PnaLA> <https://youtu.be/se1tly5UWpE>

# Today's agenda

- The secret hunting & torture from CCP
- Short connection VS long connection
- Frontend framework and its evolution
- languages for backend
- Lifecycle of backend request-response
- Backend framework
- We should be able to write a framework
- System diagram of DeCensorMedia
- Micro data center will be a future market
- Cellphone will be a remote controller
- The encryption market for frontend and backend

# Secret hunting & torture from CCP

- Chemical gas : a high-tech weapon of chemical !? subtle smell, not easy to notice, because human nose will get used to it after roughly 30 minutes, especially when you never heard of such ugly trick! It took me about more than 1 year to discover that my sleepless problem was caused by the chemical gas! The long exposure of yourself to the chemical gas in the room will arise the heart problems, it is partially why so many certain people strangely died from heart attack! A very cunning method to torture and kill person! The chemical gas make you don't have a sense of tiredness, even thought you are exhausted, if one exhaust his body often like this, he is very likely to have a sudden heart attack! I have to end up sleeping in a big plastic bag as below as if I am living in a submarine for a good sleep!



- Sonic attack (ultra-sound / infra-sound). A high-tech weapon of physics !? It will also cause sleepless problem! This is also almost impossible for the victim to discover this ugly trick. I happened to record the sound which was I did not heard physically, but somehow the laptop has imperfect signal processing design, it shift the frequency of the ultra-sound/infra-sound to an audible area. This is the link to the sound: [https://youtu.be/L\\_dbZssEKas?t=770](https://youtu.be/L_dbZssEKas?t=770) , please maximize the volume of your headphone. It sounds like one driving a car with window open.

# Secret hunting & torture from CCP

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“It could be like a low-tone motor, or metal scraping, or like driving in a car with the back window open” said Dr. Smith, director of the Center for Brain Injury and Repair at the University of Pennsylvania.



# Secret hunting & torture from CCP

- Hospital ! They make hospital in China a secret battle field, many people got illness such as cancer, dying slowly! It is hard possible for them to know who kill them ! Doctors are not always angels, some are butchers ! They can export such good successful experience oversea as well since they are now very rich! This is the reason they like torturing victims, and distract his attention to looking for reasons from their own health reasons, with the help of hacker technology they know the victims each move, and waiting for a opportunity when he visits hospital.
- Death looks like accident or suicide! It proves in HongKong, with so many innocent people jumping from high floor with so called suicide letters.
- They are no human, they are something that does not belong to earth. If you read this, please kindly tell these important information to people who are liked to be a target of CCP. **No matter you are Chinese or not, if you are doing or saying something good but against CCP, you need to know this, so that you won't end up like me!** Thanks for your kind heart, and keep doing good things, but please do be aware of these ugly and dirty tricks, be safe and be good. May God bless you and me, bless the world!

# Short connection VS long connection

- http/https is short connection. After the server receive a request, it should return the response ASAP, otherwise if it takes long time like several seconds or minutes, that is a bad design, the browser will give time out error. For task like this which will take the server much longer time to process, we should return a response with unique sequence as lookup code, the browser can fire another request with the code and look for the result in database or cache!
- Websocket is long connection ! Video call/ messaging chat have to use websocket! So that client and server can sent data to each other, while in https/http short connect, only client can initiate a request to server!

# Front-end app

- It includes :

1. web browser。 web browser provider has developed almost all kind of version for different OS (operation system)。 development language: html, css, javascript .

Pros : fast development period,can actually replace a lot of Apps for general applications.

Cons: not efficient for hardware resource consuming applications.like image processing, deep learning...etc, but there is a solution for this in the future if we off load complicated tasks to home server and return the result to phone device,in this case, phone will be just like a remote controller device, the only critical requirement is adequate speed of data network!

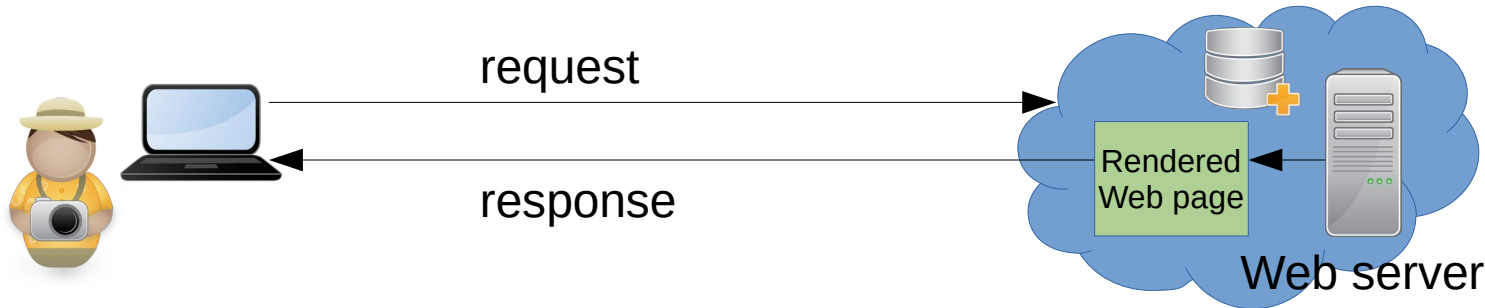
2. customized App on android/IOS/computer os etc...

Pros : can maximize the hard resources.

Cons: much longer time of development.

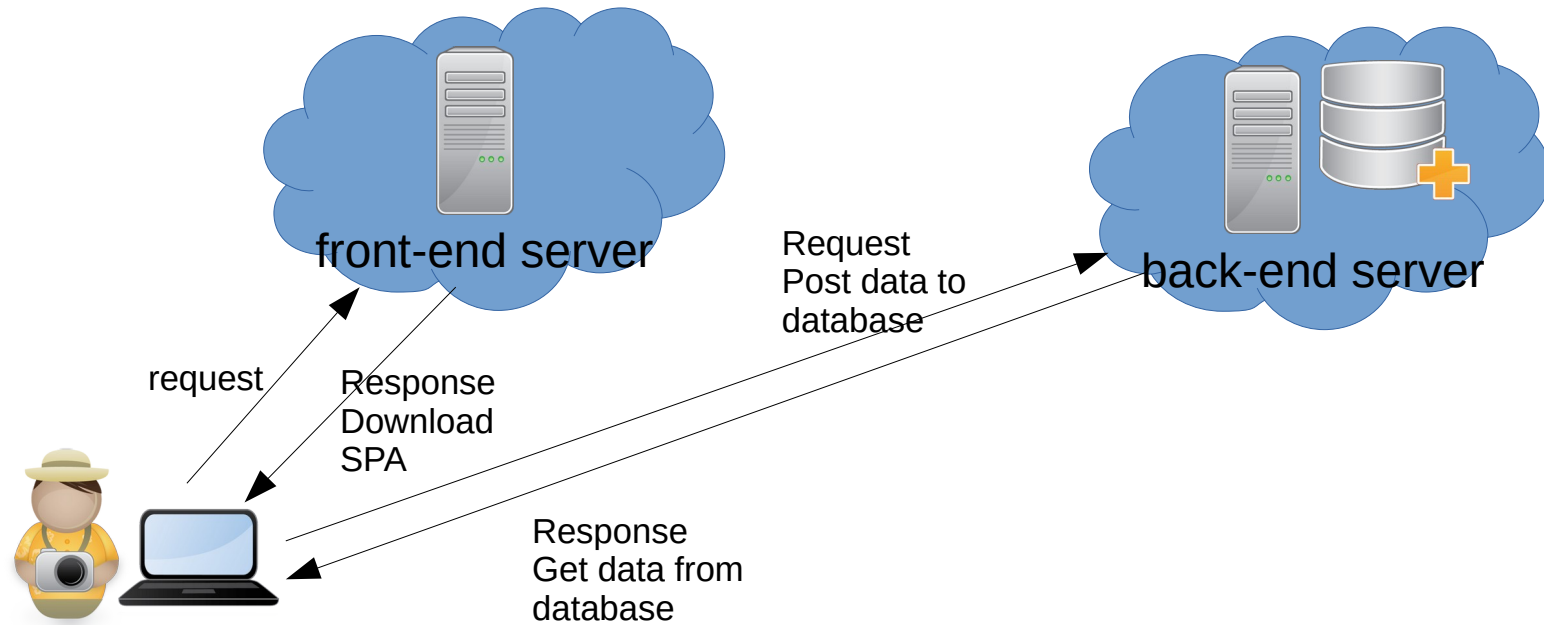
# Front-end server and evolution

- A traditional web structure is as below



- Cons: have to reload the whole page from server when even a small change => bad user experience.
- Evolution, SPA framework, such as Angular, React, Vue...

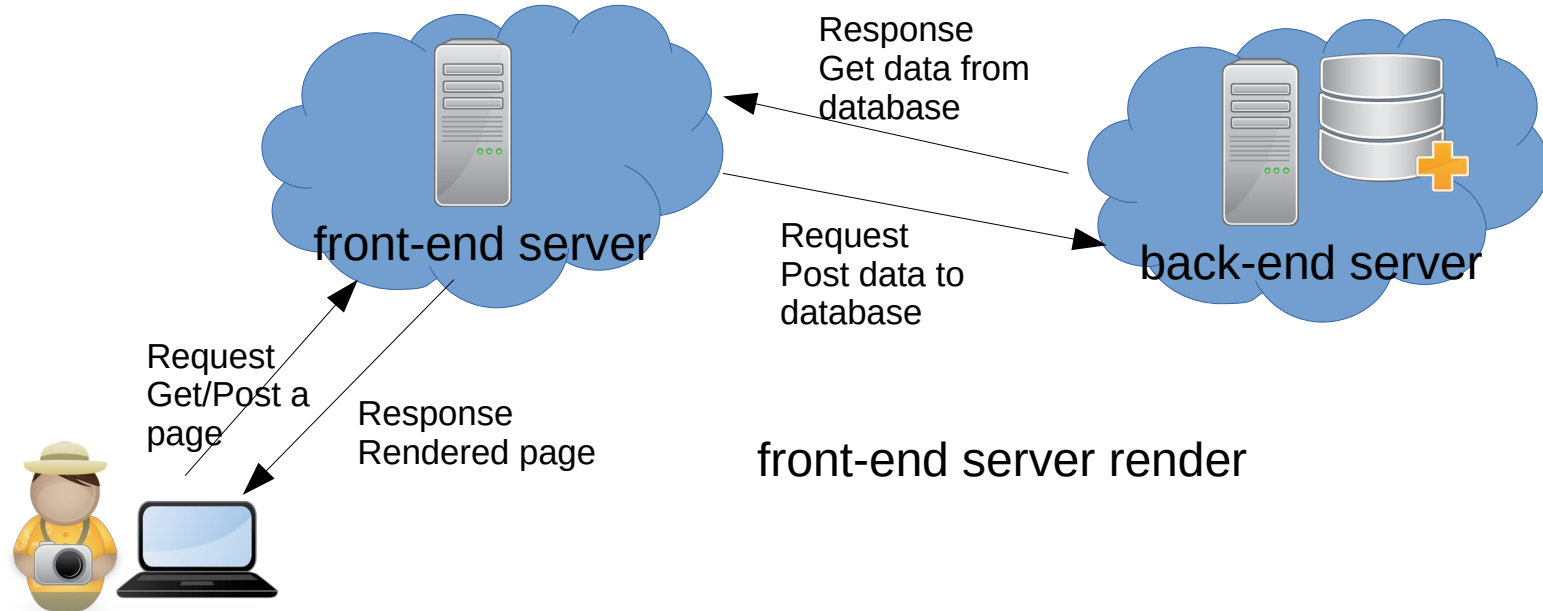
# Frontend + backend server



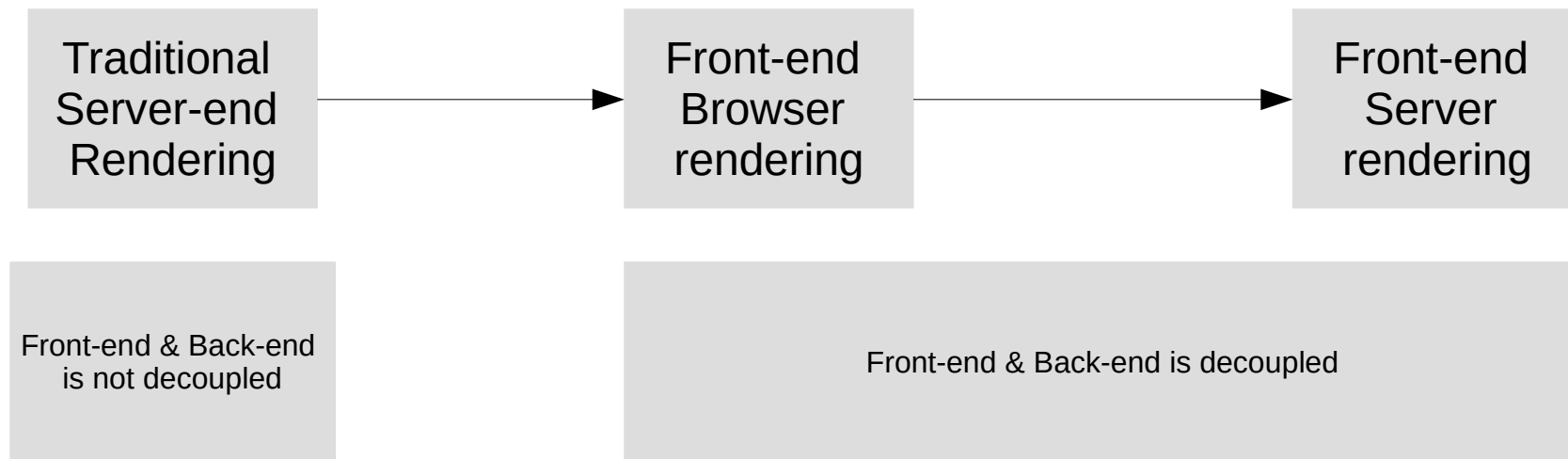
Front-end browser render.  
In real project, we hide  
back-end server behind  
nginx server via proxy

# Cons of frond-end app rendering

- Bad for SEO, search engine get blank page from front-end server.
- In order to satisfy SEO, people come up with front-end server rendering



# Recap of three type of rendering



- Still no framework satisfy both :
  1. user experience
  2. search engine

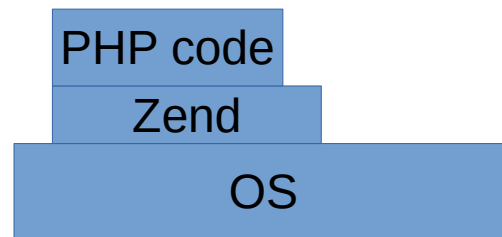
# Our front end solution

- In this project we are going to use both frontend server rendering and front-end browser rendering, certain pages for SEO are rendered at server end, rest are rendered in browser



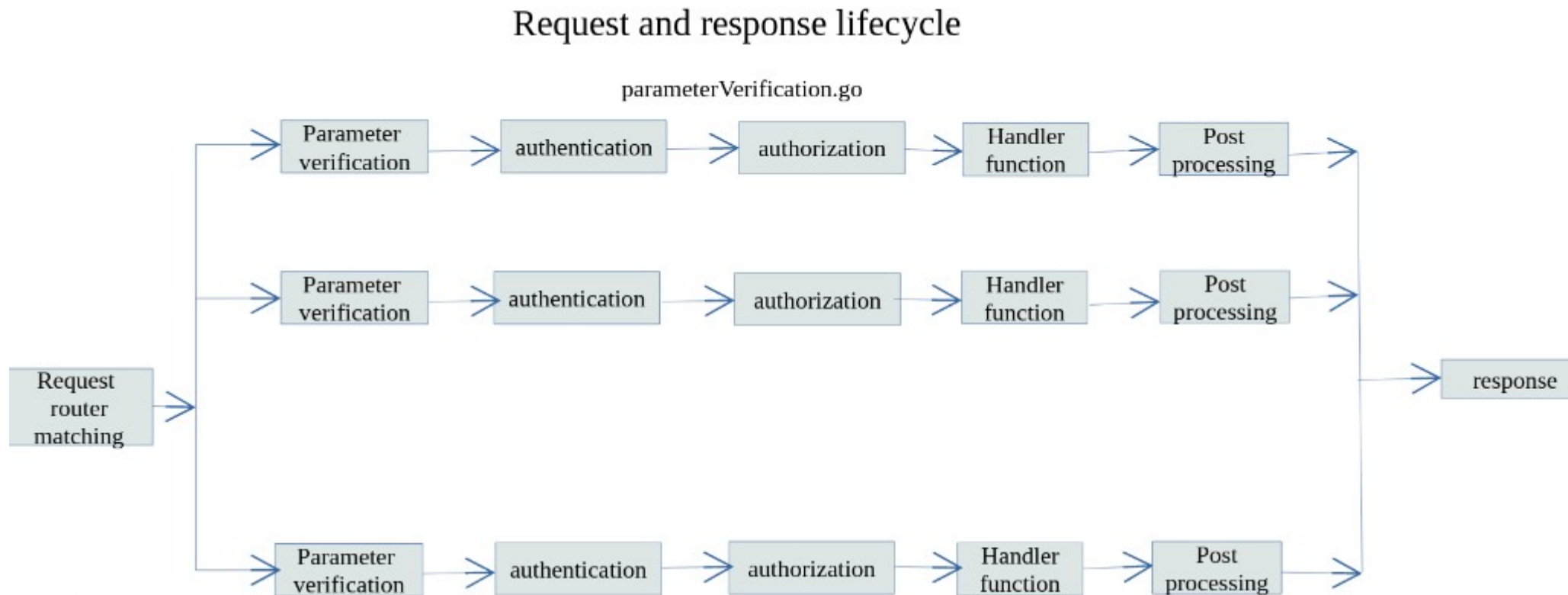
# Languages for backend

- People used to design back-end mostly with C++
- Cons of C++, slow development time, requires much higher skills, need to be very careful with memories .
- PHP, Javascript, Java and python run on engines which runs on OS .  
Pros : engines are much stable with good teams maintaining. Speed up the development time, easy to start with.



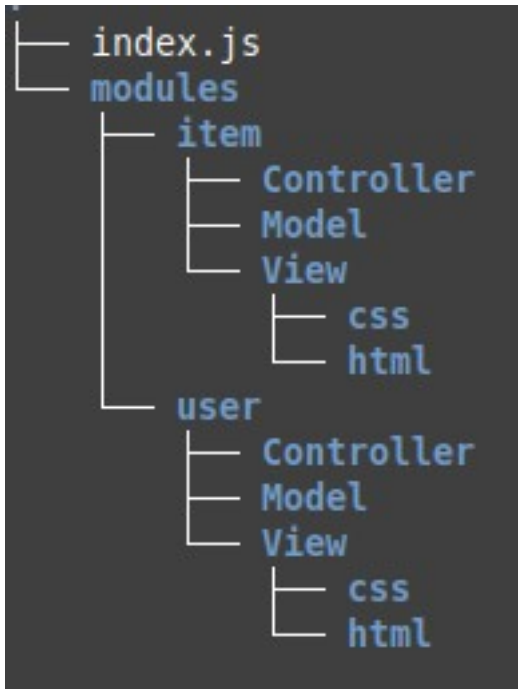
- Golang  
Pros: the compiled code is an executable file which runs directly on OS, same as C++, but with fast development time

# Backend request-response life cycle



# Backend frameworks

- MCV



- Controller : connects request to its handler function
- Model : dealing with database
- View. dealing with web page rendering, for instance, html,css file, some framework adds functions to get data for variables in html files.

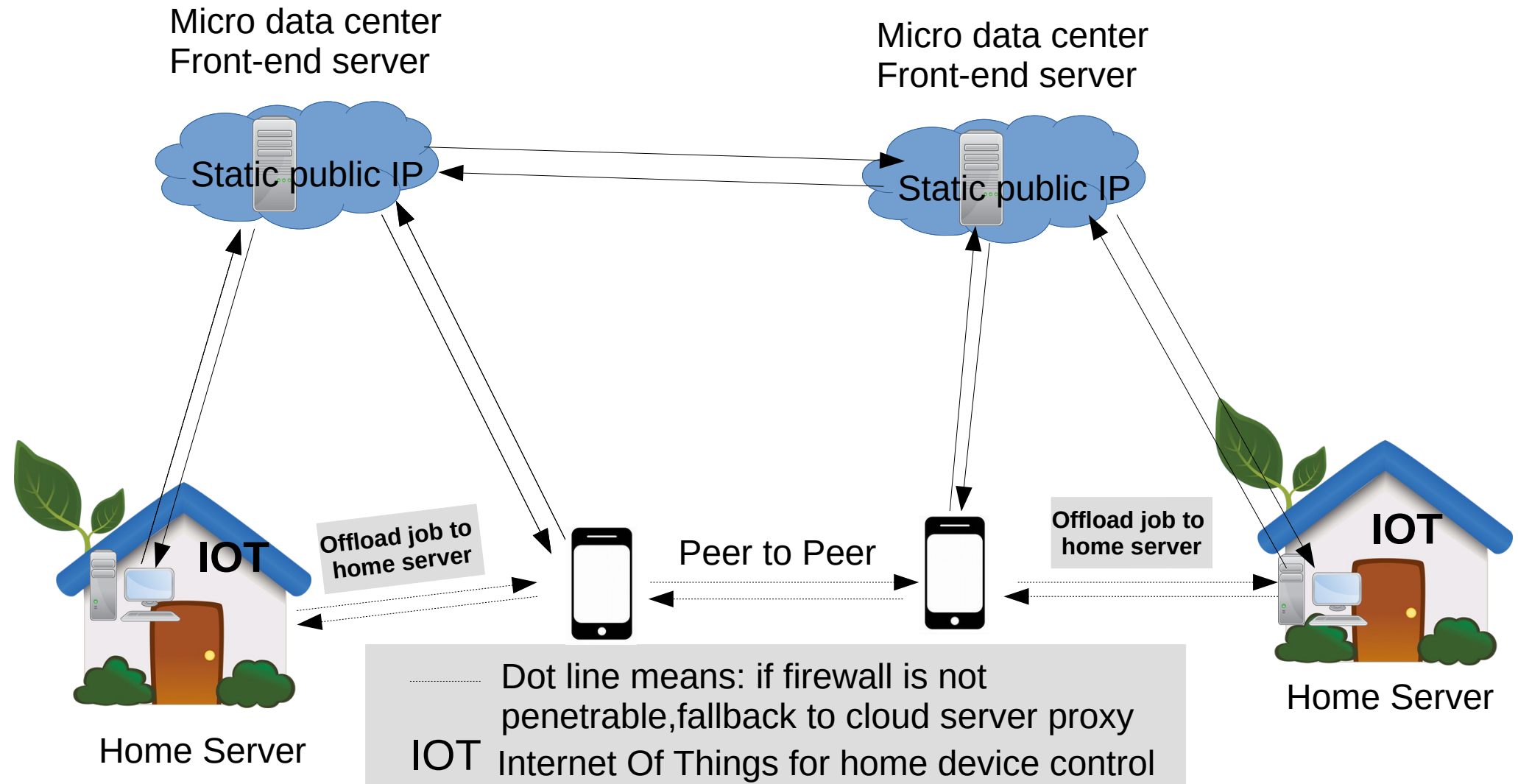
# We should be able to write framework

- Not all frameworks satisfy our own project requirement, we need to develop our own
- In this project we will going to write a framework with golang
- github: <https://github.com/brianwchh/buildGoFrameWork.git>

# 我們要能夠自己寫一個框架(2)



# DeCensorMedia系統框圖



# Micro data center

- Data center will never be private garden for big companies. Every one has to opportunity to run micro data center.
- 何為機房？一個價格稍貴的public static IP + 服務器，何為服務器？就是不需要顯示器的規格稍高的電腦。可以幾個人合夥買或者租，作為私人使用，非商業級別，放在一個人家裏即可實現外網的訪問和轉發等功能的微型雲端機房。
- 機房最終要的品質是信任！社區裏的機房，或是相識之人的機房，或許會比遠在天邊的機房更讓人有信任感覺！人之常情！
- 做FPGA的朋友可以往微機房設備方向發展。

# Cell phone is a remote controller

- Our cell phone will be a remote controller for our home IOT system
- Time and hardware consuming tasks can be uploaded to home server.
- we no longer have to upload our voice to others cloud server for free translation. Free is not free of price, our privacy is more valuable and important!



# The market for encryption

- There is no absolute safe device in the world. Security is not free, same as freedom!
- There is huge need for front-end device and backend server