

# Yuan 的 HTTP Echo Server

## 專案介紹 與 開發心得

- Demo: <https://echo.yuaner.tw/> ...
- 專案原始碼 <https://github.com/chyuaner/cloudflare-echo-server>
- 本投影片的原始碼 <https://github.com/chyuaner/slide-cloudflare-echo-server>

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# 主要核心功能

本專案是提供CDN Edge層級的http  
回音伺服器

你對我發出Request，我的伺服器就  
會把我從你這邊接到的資訊：

- 以什麼網址字串
- 帶了什麼Post Body
- 帶了什麼Request Header

會如實的以ResponseBody方式回應  
給你。

同時也可以當作MyIP查詢使用，會顯  
示在「Host」區塊。

## Yuan 的 HTTP Echo Server

GET

https://echo.yuaner.tw/assets/text/dict/textpar.html?ref=tablericons&utm\_source=tablericons-mainsite&utm\_medium=partner&utm\_campaign=250k-more-icons&tab=all

Method	GET
BaseUrl	https://echo.yuaner.tw
OriginalUrl	/assets/text/dict/textpar.html?ref=tablericons&utm_source=tablericons-mainsite&utm_medium=partner&utm_campaign=250k-more-icons&tab=all
Protocol	https

🔗 URL Params

1. assets

2. text

3. dict

4. textpar.html

🔗 URL Query

• ref: tablericons

• utm\_source: tablericons-mainsite

• utm\_medium: partner

• utm\_campaign: 250k-more-icons

• tab: all

🌐 Host

• IP: 2001:b400:e2c2:c865:d68b:4031:6d82:80f3

• hostname: echo.yuaner.tw

• Colo: SJC

• Country: TW

• City: Kaohsiung

• Continent: AS

• Latitude: 22.61626

• Longitude: 120.31333

• Region: Takao

• Region Code: KHH

• Timezone: Asia/Taipei

📄 Header

Key	Value
accept	text/html,application/xhtml+xml,application/xml;q=0.9,*/*;q=0.8
accept-encoding	gzip, br
accept-language	zh-TW,zh;q=0.8,en-US;q=0.5,en;q=0.3
cf-connecting-ip	2001:b400:e2c2:c865:d68b:4031:6d82:80f3
cf-ipcountry	TW
cf-ray	9a6201217b0cf94b
cf-visitor	{"scheme":"https"}
connection	Keep-Alive

## 專案特色

# 在CDN Edge層級直接提供完整服務

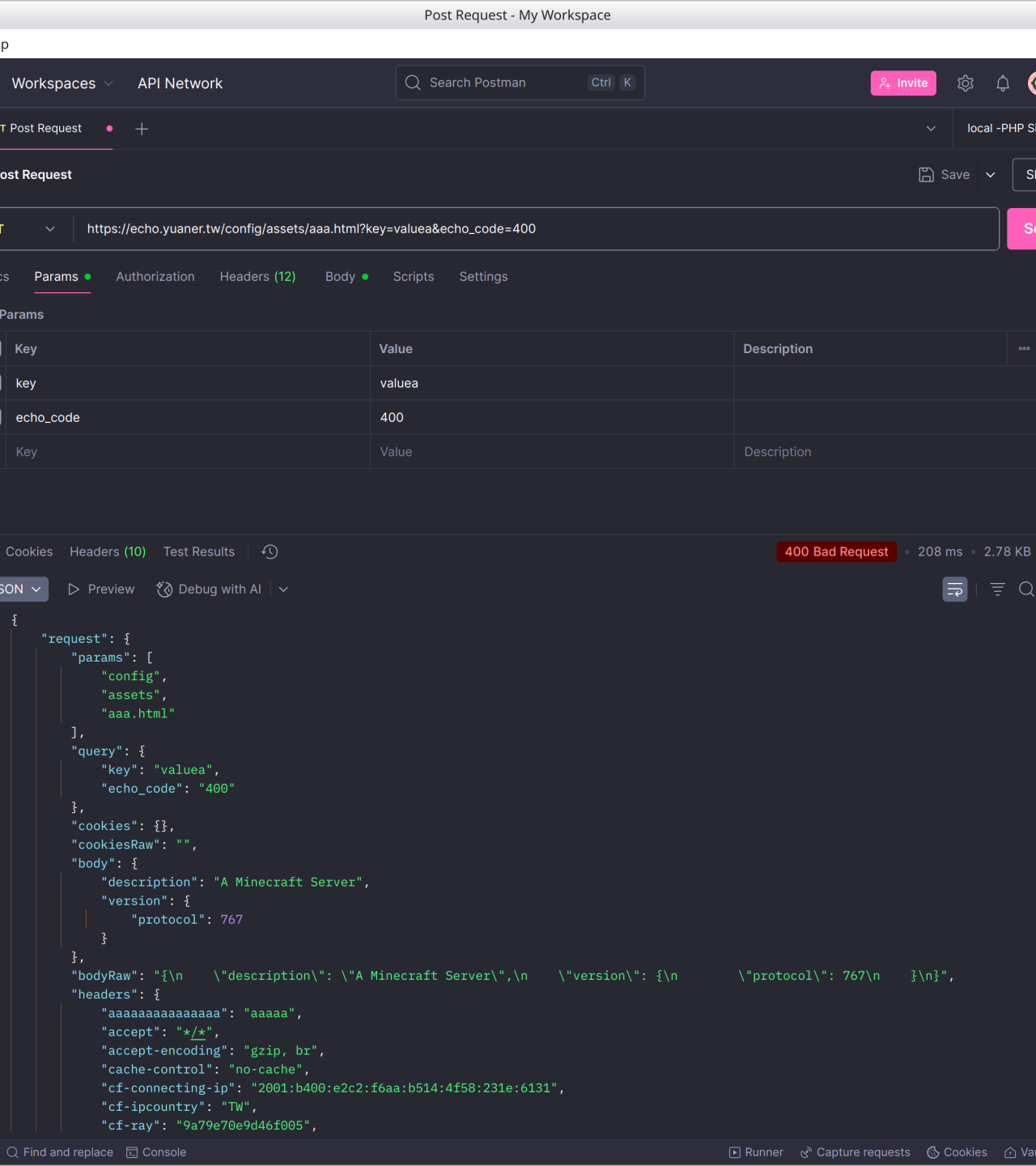
傳統後端架構（以我習慣的PHP為例）

公網 → CDN快取 → Reverse Proxy(管理vhost) → Nginx → php-fpm → 我的專案

 本專案採用的是：CDN層級**直接服務**架構

公網 → CDN直接服務

理論上極致效能低延遲



# JSON格式作為預設 Response Body輸出

基本上以 [ealen/echo-server](#) 專案為基礎，重新撰寫復刻核心功能

分為三大塊：

- request
- http
- host

可用於Postman、Paw、Insomnia、Hoppscotch等HTTP API調試客戶端使用

# 有設計精美的 網頁UI界面

## Yuan 的 HTTP Echo Server

GET

https://echo.yuaner.tw/assets/text/dict/textpar.html?ref=tablericons&utm\_source=tablericons-mainsite&utm\_medium=partner&utm\_campaign=250k-more-icons&tab=all

Method

GET

BaseUrl

https://echo.yuaner.tw

OriginalUrl

/assets/text/dict/textpar.html?ref=tablericons&utm\_source=tablericons-mainsite&utm\_medium=partner&utm\_campaign=250k-more-icons&tab=all

Protocol

https

### URL Params

1. assets
2. text
3. dict
4. textpar.html

### URL Query

- **ref:** tablericons
- **utm\_source:** tablericons-mainsite
- **utm\_medium:** partner
- **utm\_campaign:** 250k-more-icons
- **tab:** all

### Host

- IP: 2001:b400:e2c2:c865:d68b:4031:6d82:80f3
- hostname: echo.yuaner.tw
- Colo: SJC
- Country: TW
- City: Kaohsiung
- Continent: AS
- Latitude: 22.61626
- Longitude: 120.31333
- Region: Takao
- Region Code: KHH
- Timezone: Asia/Taipei

### Header

Key	Value
accept	text/html,application/xhtml+xml,application/xml;q=0.9,*/*;q=0.8
accept-encoding	gzip, br
accept-language	zh-TW,zh;q=0.8,en-US;q=0.5,en;q=0.3
cf-connecting-ip	2001:b400:e2c2:c865:d68b:4031:6d82:80f3
cf-ipcountry	TW
cf-ray	9a6201217b0cf94b
cf-visitor	{\"scheme\":\"https\"}
connection	Keep-Alive

# 清楚明瞭的HTTP Method

網址列顏色會根據 GET, POST, PUT, DELETE改變顏色

**GET** `https://echo.yuaner.tw/config/assets/aaa.html?key=valuea`

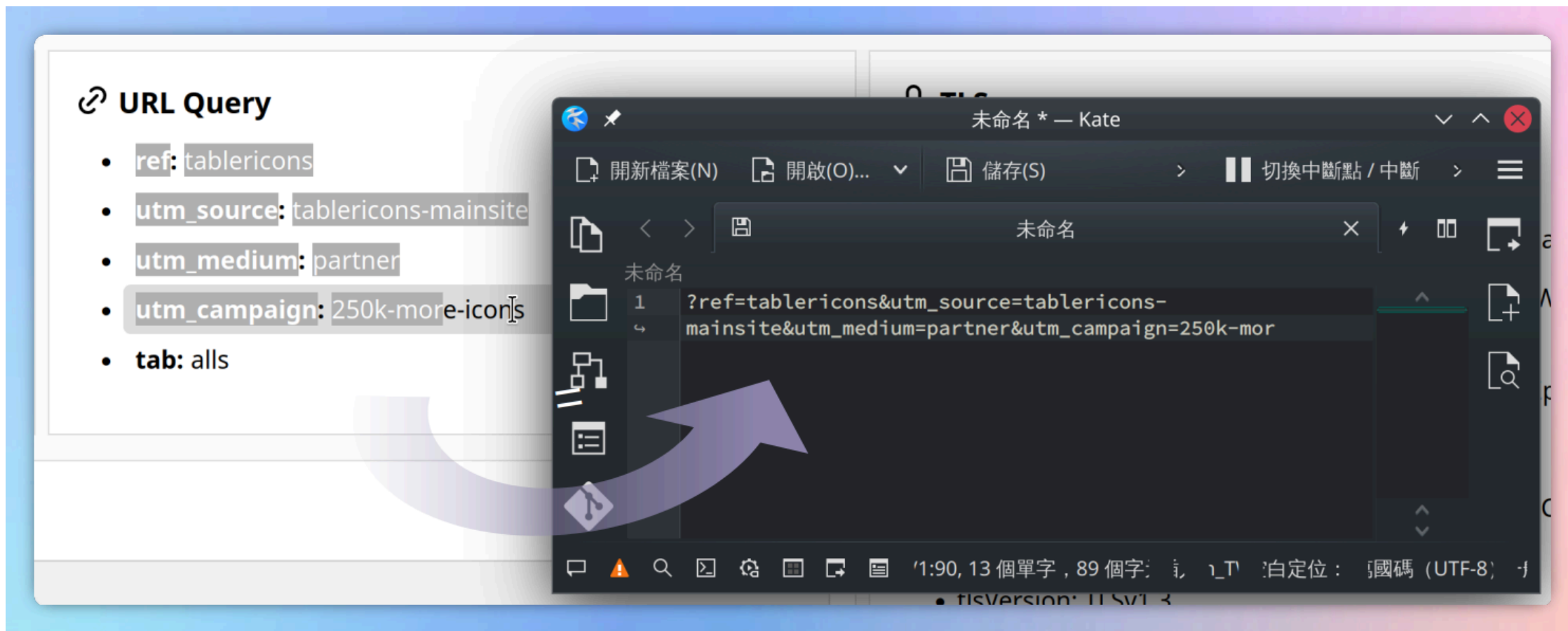
**POST** `https://echo.yuaner.tw/config/assets/aaa.html?key=valuea`

**PUT** `https://echo.yuaner.tw/config/assets/aaa.html?key=valuea`

**DELETE** `https://echo.yuaner.tw/config/assets/aaa.html?key=valuea`

顏色挑選有特別與Swagger、API Doc對齊

# 網址文字友善複製



有特別為「URL Params」、「URL Query」區塊特別設計友善文字複製。界面乍看下是ul li項目清單，但圈選文字後，會直接複製成可直接貼上網址列的字串



# RWD手機友善 與 Dark Mode配色

## RWD手機友善

Header

accept

text/html,application/xhtml+xml,application/xml;q=0.9,\*/\*;q=0.8

accept-encoding

gzip, br

accept-language

zh-TW,zh;q=0.8,en-US;q=0.5,en;q=0.3

cf-connecting-ip

2001:b400:e2c2:f6aa:b514:4f58:231e:6131

cf-ipcountry

TW

cf-ray

9a7a6e2dcfb5dc0d

## Dark Mode配色

Yuan 的 HTTP Echo Server

GET https://echo.yuaner.tw/assets/text/dict/textpar.html?ref=tablericons&utm\_source=tablericons-mainsite&utm\_medium=partner&utm\_campaign=250k-more-icons&tab=all

BaseUrl https://echo.yuaner.tw

OriginalUrl /assets/text/dict/textpar.html?ref=tablericons&utm\_source=tablericons-mainsite&utm\_medium=partner&utm\_campaign=250k-more-icons&tab=all

Protocol HTTP/2

URL Params

1. assets

2. text

3. dict

4. textpar.html

URL Query

ref: tablericons

utm\_source: tablericons-mainsite

utm\_medium: partner

utm\_campaign: 250k-more-icons

tab: all

TLS

tlsCipher: AEAD-AES128-GCM-SHA256

tlsClientCiphersSha1: LnbVHP1R8ay/dUsahfir53h8aw4=

tlsClientExtensionsSha1: l41A6hAf8CFQan+yuADUWHCIneg=

tlsClientExtensionsSha1Le: //MhJMRn06+Eij53CchZp/zi/yQ=

tlsClientHelloLength: 1826

tlsClientRandom: MSQocOJYZ/ck6QgAZxhX9BKL+nCflpkBDs0uF9/Qm4w=

tlsVersion: TLSv1.3

Header

Key	Value
accept	text/html,application/xhtml+xml,application/xml;q=0.9,*/*;q=0.8
accept-encoding	gzip, br
accept-language	zh-TW,zh;q=0.8,en-US;q=0.5,en;q=0.3
cf-connecting-ip	2001:b400:e2c2:f6aa:b514:4f58:231e:6131
cf-ipcountry	TW
cf-ray	9a7a6e2dcfb5dc0d
cf-visitor	{\"scheme\":\"https\"}

Host

IP: 2001:b400:e2c2:f6aa:b514:4f58:231e:6131

hostname: echo.yuaner.tw

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# 網頁界面仍有提供Raw Response Body

模擬本後端的JSON模式原始輸出，方便切換客戶端比對使用

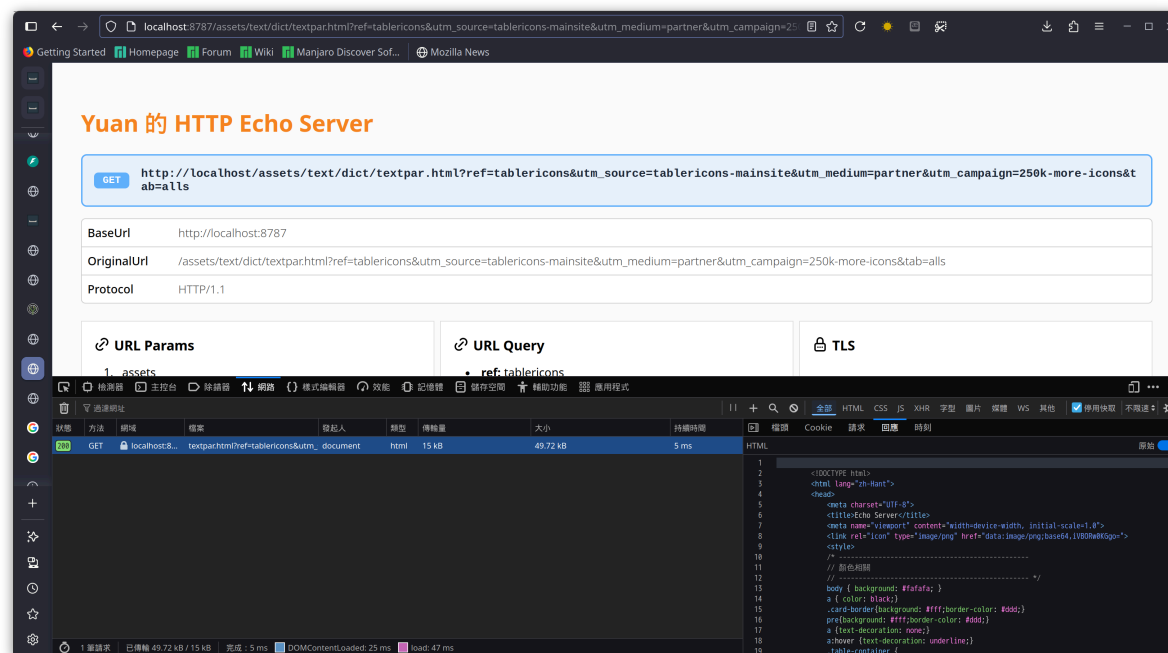
upgrade-insecure-request	1
user-agent	Mozilla/5.0 (X11; Linux x86_64; rv:139.0) Gecko/20100101 Firefox/139.0
x-forwarded-proto	https
x-real-ip	2001:b400:e2c2:f6aa:b514:4f58:231e:6131

- As Organization: HiNet Taiwan
- Region: Taiwan
- Region Code: 04
- Timezone: Asia/Taipei

### </> Raw Response Body

```
{
  "request": {
    "params": [
      "assets",
      "text",
      "dict",
      "textpar.html"
    ],
    "query": {
      "ref": "tablericons",
      "utm_source": "tablericons-mainsite",
      "utm_medium": "partner",
      "utm_campaign": "250k-more-icons",
      "tab": "alls"
    },
    "cookies": {},
    "cookiesRaw": "",
    "body": {},
    "bodyRaw": "",
    "headers": {
      "accept": "text/html,application/xhtml+xml,application/xml;q=0.9,*/*;q=0.8",
      "accept-encoding": "gzip, br",
      "accept-language": "zh-TW,zh;q=0.8,en-US;q=0.5,en;q=0.3",
      "cf-connecting-ip": "2001:b400:e2c2:f6aa:b514:4f58:231e:6131",
      "cf-ipcountry": "TW",
      "cf-ray": "9a7a6e2dcfb5dc0d",
      "cf-visitor": "{\\\"scheme\\\":\\\"https\\\"}",
      "connection": "Keep-Alive",
      "host": "echo.yuaner.tw",
      "user-agent": "Mozilla/5.0 (X11; Linux x86_64; rv:139.0) Gecko/20100101 Firefox/139.0"
    }
  }
}
```

# 效能考量設計



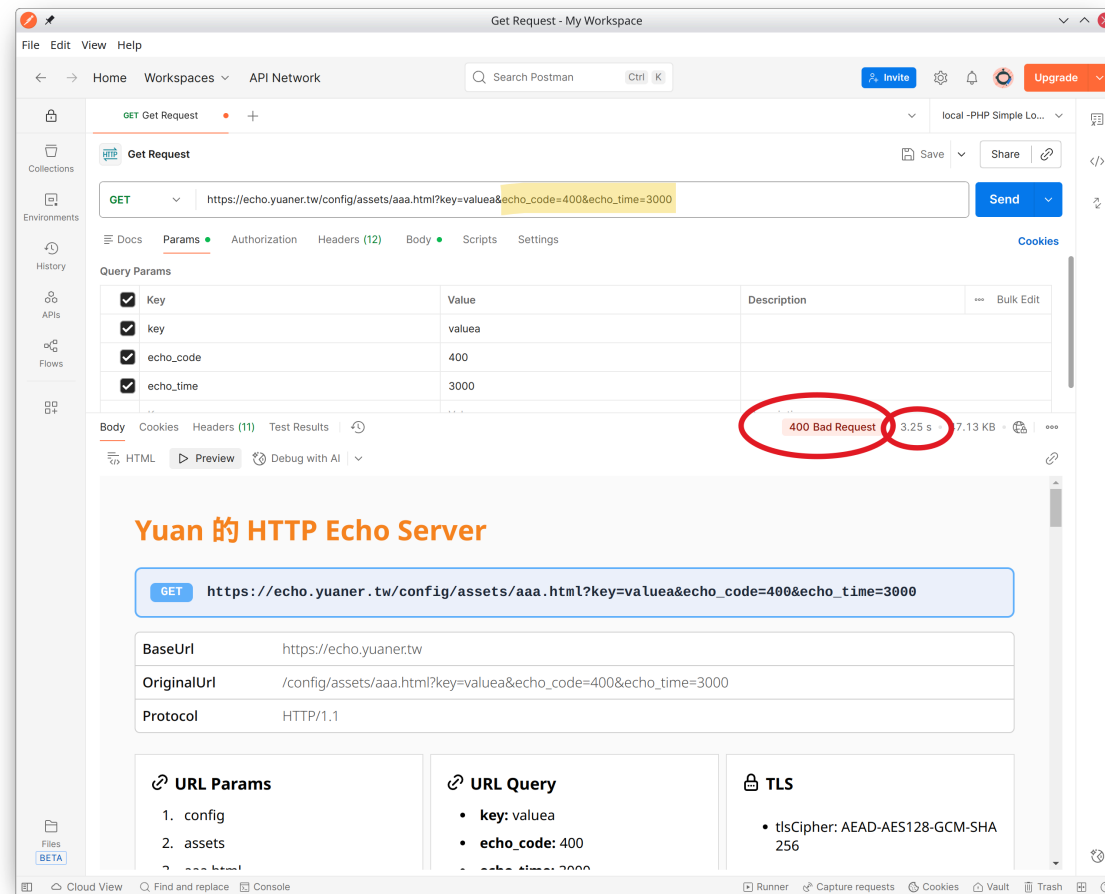
網頁版不會產生額外Request載入其他資源！（如:圖片、CSS、JS等等）

- 所有外部資源如Icons與Syntax Highlight JS都已直接內嵌在單一這個Request。
- 所有圖片都是SVG格式

## ➡ 附加功能

提供 URL Query 參數 來控制以下功能

- `echo_code=200` : 控制要回傳的 HTTP Status Code
- `echo_time=3000` : 控制伺服器要延遲多久才會送 Response , 模擬較差網路品質狀況使用



# ➡ 提供本地架設方式

本專案雖然是為Cloudflare量身打造的，但也有提供傳統的架設方式

- Docker

```
docker run -p 3000:3000
```

```
chyuaner/echo-server
```

- Node直接啟動

```
npm i && npm run start
```

The screenshot shows the Docker Hub interface for the repository **chyuaner/echo-server**. The page includes a header with navigation links (Explore, My Hub), a search bar, and a repository management button. The repository details section shows it was updated about 3 hours ago and provides a description: "提供輕量化的http回音伺服器 (Docker獨立執行版本)". It also displays the repository type (ARTIFACT, IMAGE), star count (0), and download count (91). The Overview tab is selected, showing a description of the project as a CDN Edge-level HTTP echo server. A demo URL is provided: [https://echo.yuaner.tw/assets/text/dict/textpar.html?ref=tablericons&utm\\_source=tablericons-mainsite&utm\\_medium=partner&utm\\_campaign=250k-more-icons&tab=all](https://echo.yuaner.tw/assets/text/dict/textpar.html?ref=tablericons&utm_source=tablericons-mainsite&utm_medium=partner&utm_campaign=250k-more-icons&tab=all). A screenshot of the demo is shown, displaying a detailed HTTP request and response. The right sidebar contains a Tag summary (Recent tags: master), Content type (Image), Digest (sha256:1e5421ffd...), Size (45.7 MB), and Last updated (about 3 hours ago). A code block at the bottom shows the command to pull the image: `docker pull chyuaner/echo-server:master`.

## 開發心得

# 本次採用語言

其實我本身比較擅長PHP，但...

- 本次目的就是想減少自有主機依賴，變成要遷就雲端提供商的限制
- Cloudflare Workers基本上就是以NodeJS語言為主
- 本次目的是盡可能減少線路「繞圈」與「轉換」，來換取效能

# 開發緣由

## 先前都是使用 ealen/echo-server

雖然已包好Docker，架設簡單、輸出結構簡潔漂亮，但是...

- 只有提供JSON格式回傳
- 需要有自己的主機架設
  - 然後我近期的主機資源很吃緊~~~
- 其他原因，下述...



# 近期對CDN優化有興趣

我以前使用Cloudflare Worker用途

- 網址搬遷時用白名單Mapping表概念，讓特定舊網址跳轉到新網址
- 短網址直接跳轉
- 偵測客戶端特定國家自動跳轉專用網址

# 後來發現Workers其實可以做到以下事情

- 拿到客戶端傳來的Request
  - **URL Params / Query**
  - **Request Post Body**
  - **Request Post Body**
- 可以控制Response內容
  - 跳轉導向到特定的網址
  - 改寫 Response Body內容
  - 可以直接輸出指定的字串，也包含整串HTML大字串

 評估下來，本次需求僅用以上功能就足夠了！！！！

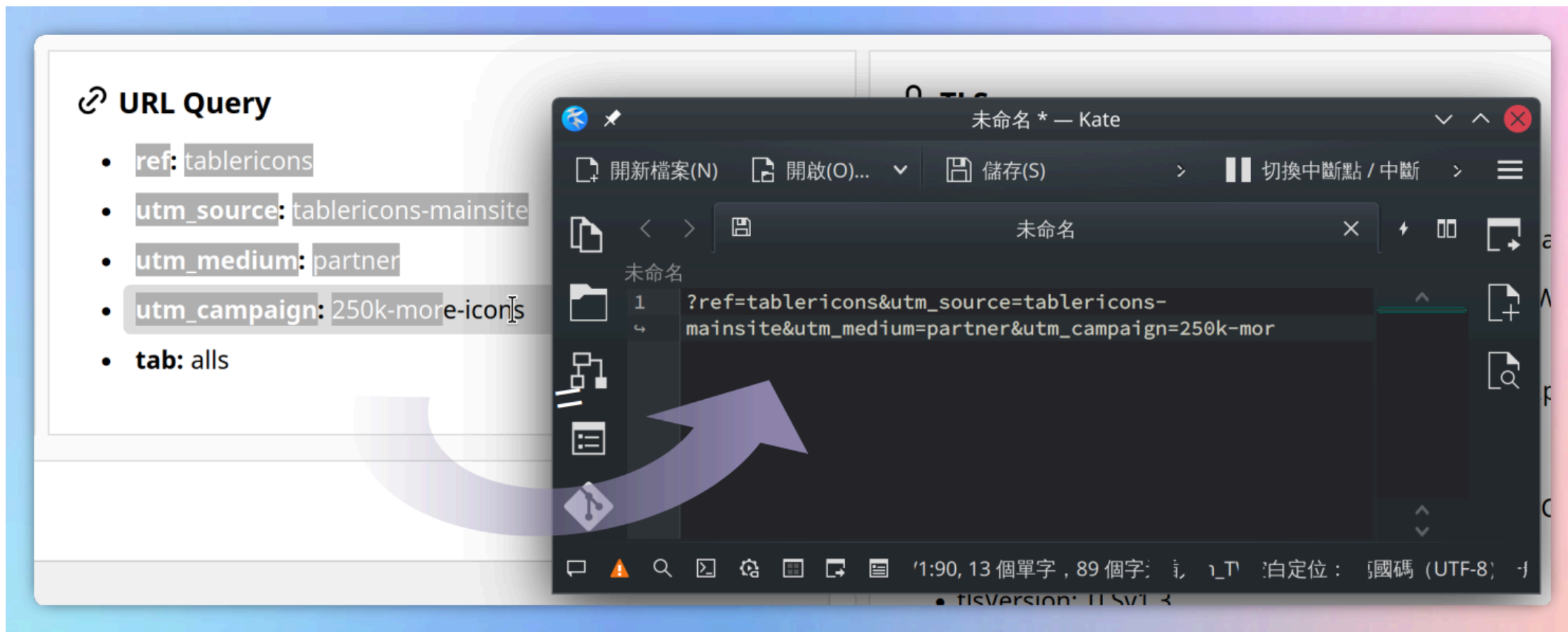
# Cloudflare Worker執行能力有限

- 並不是完整的NodeJS環境，只能執行Cloudflare API名單內的function
- 沒有檔案概念，若需要額外資源檔案，需要另外加掛資源空間
  - 也直接導致很難使用ejs之類的模板框架（遇到底層有使用到 `eval` 與 `fs` 就會被拒絕執行）

## 對策：

- 所有資源全部Hard Code寫死內嵌，整理成JS陣列。
- 不使用模板系統，直接靠func整理HTML字串。
  - 但自己在規劃JS Function時仍然會盡量模組化。

# 網址文字友善複製



界面乍看下是url項目清單，但圈選文字後，會直接複製成可直接貼上網址列的字串

# 網址文字友善複製 實做方式

原始結構全部都是 `<span>`

```
<span class="firstchar">?</span>
<span class="li">
  <span class="part">
    <span class="key">ref</span><span class="kvsplit">=</span>tablericons
  </span>
  <span class="split">&amp;</span>
</span>
<span class="li">
  <span class="part">
    <span class="key">utm_source</span><span class="kvsplit">=</span>tablericons-mainsite
  </span>
  <span class="split">&amp;</span>
</span>
<span class="li">
  <span class="part">
    <span class="key">utm_medium</span><span class="kvsplit">=</span>partner
  </span>
  <span class="split">&amp;</span>
</span>
<span class="li">
  <span class="part">
    <span class="key">utm_campaign</span><span class="kvsplit">=</span>250k-more-icons
  </span>
  <span class="split">&amp;</span>
</span>
<span class="li">
  <span class="part">
    <span class="key">tab</span><span class="kvsplit">=</span>alls
  </span>
</span>
```

全由CSS模擬 `<ul><li>` 的效果

0% JavaScript處理

```
.urltext {margin-left:1em;margin-bottom:-1em;}
.urltext .li {
  display: inline-block;
  vertical-align: middle;
  padding-left: 0.5em;
  border-radius: 5px;
}
.urltext .firstchar { padding-left:1em; }
.urltext .firstchar, .urltext .split, .urltext .kvsplit{
  opacity: 0;
}
.urltext .li {
  display: list-item;
  margin-left: 1em;
  position: relative;
  top: -2em;
  line-height: 2em;
}
.urltext .key{ font-weight: bold; }
.urltext .key::after {
  content: ": ";
  position: absolute;
}
```

# 提供本地架設方式

開發過程90%都是使用Cloudflare提供的wrangler模擬環境測試

但考量隨時會有獨立架設需求，仍有特別製作 `/src/server.js` 供獨立執行使用

`/src/index.js` 核心主功能流程與Cloudflare Workers直接進入點

`/src/server.js` 獨立執行專用 進入點

- 以NodeJS最原生的node:http為主
  - 本次需求沒有複雜的 router、session...等等，也沒有多頁面需求，不使用express這類框架
- 會銜接回 `/src/index.js`，讓所有功能都與Cloudflare Workers模式對齊
  - Cloudflare專屬功能提供的GeoIP資料則無法使用，需要用替代方式處理GeoIP問題。因為我暫時還沒有常駐用的獨立架設需求，就暫時不處理了。

# 搭配 Github Actions 自動更新Docker Hub

ner / cloudflare-echo-server

Q Type to search

+

+

sues

Pull requests

Actions

Projects

Wiki

Security

Insights

Settings

New workflow

er Image

etrics

All workflows

Showing runs from all workflows

Filter workflow runs

12 workflow runs

Event

Status

Branch

✓ 將json輸出改成原文輸出不排版

Build & Push Docker Image #10: Commit 857a465 pushed by chyuaner

master

Tod: 51s

✓ Fix Dockerfile & add package-lock

Build & Push Docker Image #6: Commit e7921d0 pushed by chyuaner

master

Tod: 48s

✗ Fix Dockerfile

Build & Push Docker Image #5: Commit ceb1968 pushed by chyuaner

master

Tod: 24s

✗ Fix Dockerfile

Build & Push Docker Image #4: Commit 9fd19c2 pushed by chyuaner

master

Tod: 28s

✗ fix github actions: 先移除以tag觸發

Build & Push Docker Image #3: Commit 87483c3 pushed by chyuaner

master

Tod: 27s

✗ github actions: 先移除以tag觸發

Build & Push Docker Image #2: Commit ef04b36 pushed by chyuaner

master

Tod: 26s

✗ add github action: docker 以 branch mast...

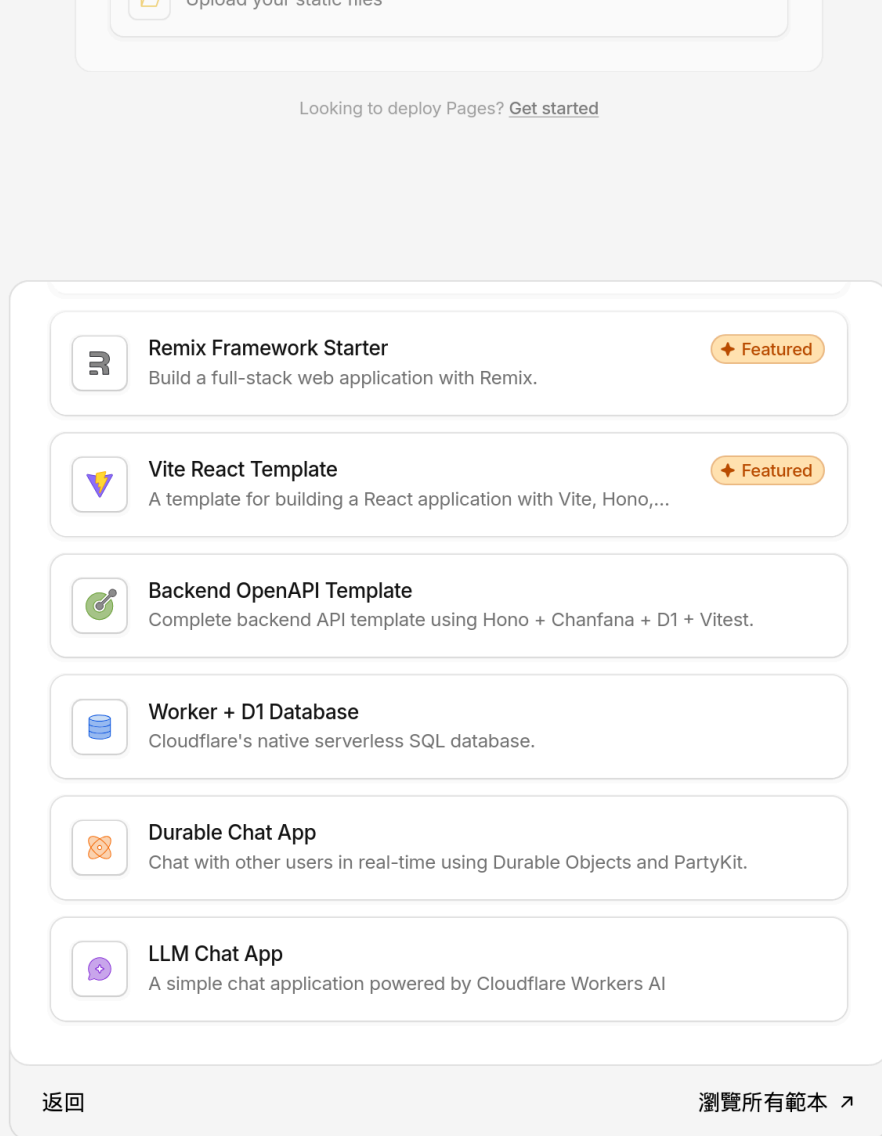
Build & Push Docker Image #1: Commit 1c9e5a0 pushed by chyuaner

master

Tod: 16s

# 後續新專案要不要用 Cloudflare Worker ?

- 他有提供介接DB的機能，但...
- Cloudflare Workers執行能力有限！
  - 本次專案已經用了大量的Wordaround方法，  
尤其是有不少直接Hard Code寫死
- 如果是傳統電商需求，基本上不會考慮！
- 小專案：Fake Images Please 復刻中 🤪





就醬，歡迎交流😊