

# Meal Order

team members

洪世彬、林俊佑、吳庭維、張家誠、戴靖婷




# User Requirements

# User Requirements

1. 消費者:**點餐與取消**, 可以成功點餐/刪除訂單
2. 商家:**更新菜單**, 可以上架新菜、下架餐點、管控菜品數量。
3. All:**Mail 通知**, 訂餐成功通知/當日通知商家與消費者
4. All:**統計月結餐費**, 提供商家與消費者月結餐費

# User Requirements - Setup

- All:
  - 登入及用戶設定



**Meal Order**

**User Login**

User Sign in with Google

**Admin Login**

Admin Email

Admin Password

Admin Login

**Create Admin Account**

Admin Email

Admin Password

Create Admin Account



名字

戴靖博

廠區

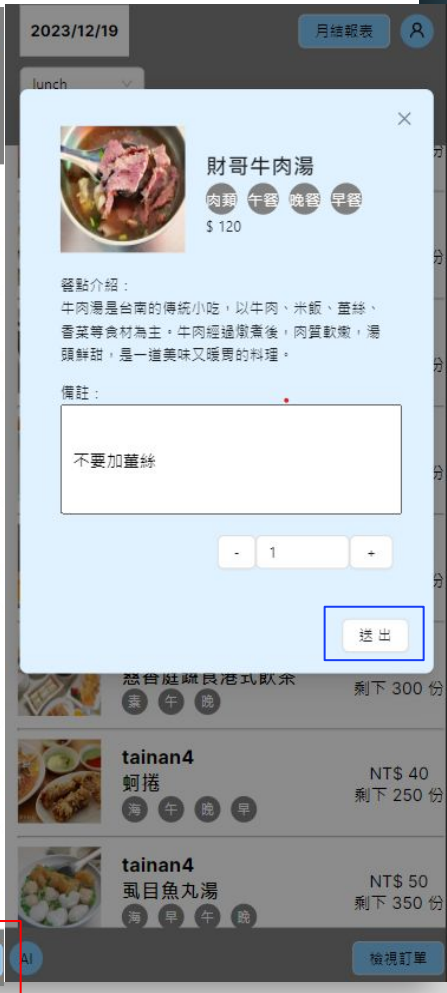
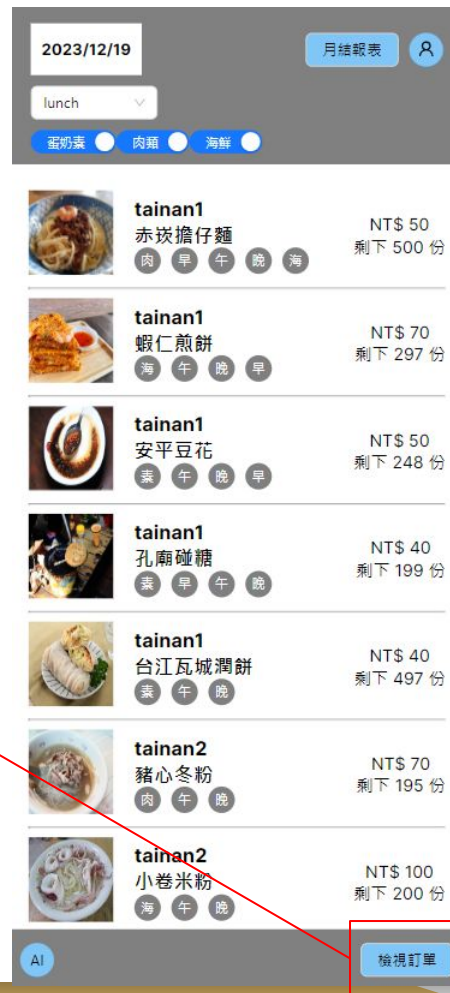
Tainan

確認

消費者:

# User Requirements - 1

- 消費者:
  - 點餐與取消, 可以成功點餐/刪除訂單



消費者:



已訂購 已取消 已完成

2023-12-19



店家: **tainan3**  
財哥牛肉湯  
肉 午 晚 早


NT\$ 120  
共 1 份  
**刪除訂單**



店家: **tainan3**  
牛肉肉燥飯  
肉 早 午 晚


NT\$ 40  
共 1 份  
**刪除訂單**

消費者:




已訂購 已取消 已完成

2023-12-19




店家: **tainan2**  
小卷米粉  
海 午 晚

NT\$ 100  
共 1 份




店家: **tainan1**  
安平豆花  
素 午 晚 早

NT\$ 50  
共 1 份



店家: **tainan1**  
台江瓦城潤餅  
素 午 晚


NT\$ 40  
共 1 份



店家: **tainan3**  
財哥牛肉湯  
肉 午 晚 早


NT\$ 600  
共 5 份

商家:




未完成 已取消 已完成

2023-12-19



店家: **tainan3**  
財哥牛肉湯  
肉 午 晚 早

NT\$ 120  
共 1 份  
**刪除訂單** **完成訂單**



店家: **tainan3**  
牛肉肉燥飯  
肉 早 午 晚

NT\$ 40  
共 1 份  
**刪除訂單** **完成訂單**

消費者:



已訂購 已取消 已完成

2023-12-19



店家: **tainan1**  
蝦仁煎餅  
海 午 晚 早

NT\$ 210  
共 3 份



店家: **tainan1**  
安平豆花  
素 午 晚 早

NT\$ 100  
共 2 份



店家: **tainan1**  
孔廟碰糖  
素 早 午 晚

NT\$ 40  
共 1 份



店家: **tainan3**  
財哥牛肉湯  
肉 午 晚 早

NT\$ 120  
共 1 份



店家: **tainan2**  
豬心冬粉  
肉 午 晚

NT\$ 350  
共 5 份



店家: **tainan1**  
台江瓦城潤餅  
素 午 晚

NT\$ 120  
共 3 份

商家:

消費者:

早安薑蔥麵

小南門碗粿

阿松割包

永樂鹿肉飯

牛肉火鍋

牛肉肉燥飯

浮水虱目魚羹

安平棺材板

鱸魚意麵

財哥牛肉湯

新增餐點

瀏覽本機圖片

上傳圖片並複製

原始上傳圖片



名稱: 財哥牛肉湯

類別: ☐ 無蛋奶素 ☒ 肉類 ☐ 無海鮮 ☐ 早餐 ☐ 午餐 ☐ 晚餐

價格: 120

份數: 300

介紹: 牛肉湯是台灣的傳統小吃, 以牛肉、米飯、薑絲、香菜等食材為主。牛肉經過燉煮後, 肉質軟嫩, 湯頭鮮甜, 是一道美味又暖胃的

圖片連結: <https://storage.googleapis.com/meal-order-static/images/PuUjgYImTMIMgpv-9.jpg>

刪除餐點

儲存變更

2023/12/19

月結報表

人

lunch

蛋奶素

肉類

海鮮

海

午

晚

剩下 300 份



tainan3

安平棺材板

NT\$ 80

剩下 150 份

肉

午

晚



tainan3

鱸魚意麵

NT\$ 150

剩下 200 份

海

午

晚



tainan3

財哥牛肉湯

NT\$ 120

剩下 299 份

肉

午

晚

早



tainan4

虱目魚肚粥

NT\$ 160

剩下 300 份

海

肉

早

午

晚



tainan4

阿王芒果冰

NT\$ 130

剩下 150 份

素

午

晚



tainan4

慈香庭蔬食港式飲茶

NT\$ 180

剩下 300 份

素

午

晚



tainan4

蚵捲

NT\$ 40

剩下 250 份

AI

檢視訂單

消費者:

# User Requirements - 3

- All:
  - Mail 通知, 訂餐成功通知/當日通知商家與消費者

商家:

餐點訂單已建立 



於 2023-12-19 14:56, 寄自 DoNotReply

 [詳情](#)

以下訂單已建立  
日期: 2023/12/19

餐點: 張哥牛肉湯 x 1 : 不要加薑絲





## 商家: User Requirements - 4

- 早安蘿蔔糕
- 小南門碗糕
- 阿松割包
- 永樂燒肉飯
- 牛肉火鍋
- 牛肉肉燥飯
- 浮水虱目魚羹
- 安平棺材板
- 鱈魚意麵
- 財哥牛肉湯
- 新增餐點

檢視訂單

月結報表

瀏覽本機圖片

上傳圖片並複製

原始上傳圖片



名稱: 財哥牛肉湯

類別: ☐ 無蛋奶蔬 ☒ 肉類 ☐ 無海鮮 ☐ 早餐 ☒ 午餐 ☐ 晚餐

價格: 120

份數: 300

介紹: 牛肉湯是台灣的傳統小吃，以牛肉、米飯、薑絲、香菜等食材為主，牛肉經過燉煮後，肉質軟嫩，湯頭鮮甜，是一道美味又暖胃的

圖片連結: <https://storage.googleapis.com/meal-order-static/images/PuUjgYimTMIMgpv-9.jpg>

刪除餐點

儲存變更

<	2023-12	📅
品項	銷售數量	銷售收入
財哥牛肉湯	1	120
		總銷售收入: \$ 120

消費者:

## User Requirements - 4

- All:
  - 統計月結餐費，提供商家與消費者月結餐費

< 2023-12

品項	購買數量	總消費金額
蝦仁煎餅	3	210
安平豆花	2	100
孔廟碰糖	1	40
財哥牛肉湯	1	120
豬心冬粉	5	350
台江瓦城潤餅	3	120

總消費金額: \$ 940

2023/12/19 月結餐費

lunch

蛋奶素 肉類 海鮮

tainan1 赤崁擔仔麵 NT\$ 50 剩下 500 份

tainan1 蝦仁煎餅 NT\$ 70 剩下 300 份

tainan1 安平豆花 NT\$ 50 剩下 250 份

tainan1 孔廟碰糖 NT\$ 40 剩下 200 份

tainan1 台江瓦城潤餅 NT\$ 40 剩下 500 份

tainan2 豬心冬粉 NT\$ 70 剩下 200 份

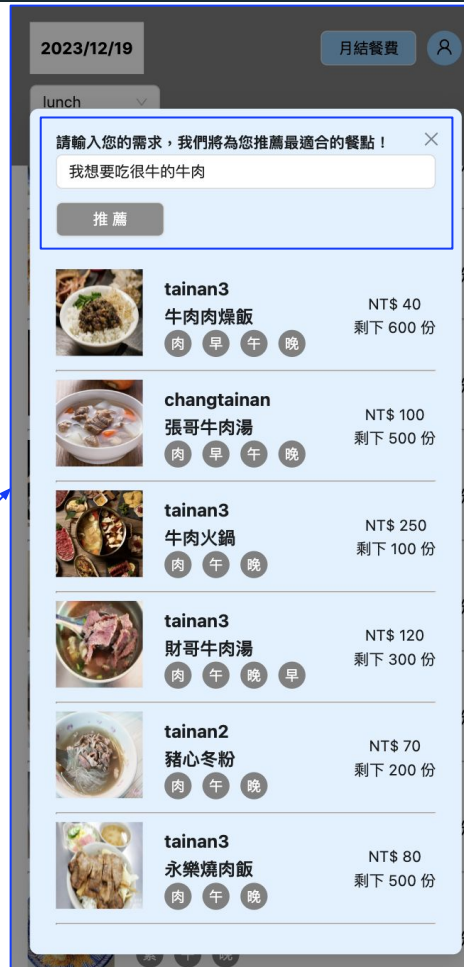
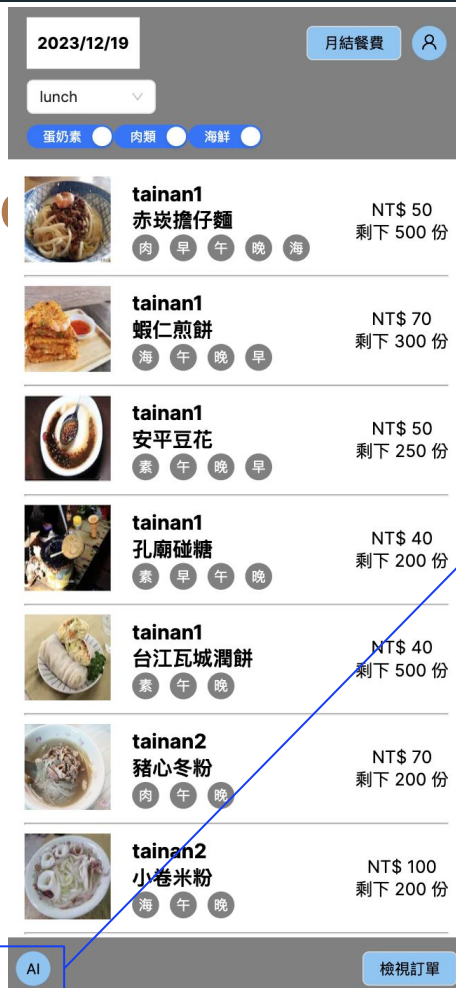
tainan2 小卷米粉 NT\$ 100 剩下 200 份

AI 檢視訂單

消費者:

# User Requirement

- 消費者:
  - AI 智能推薦餐點



# Demo



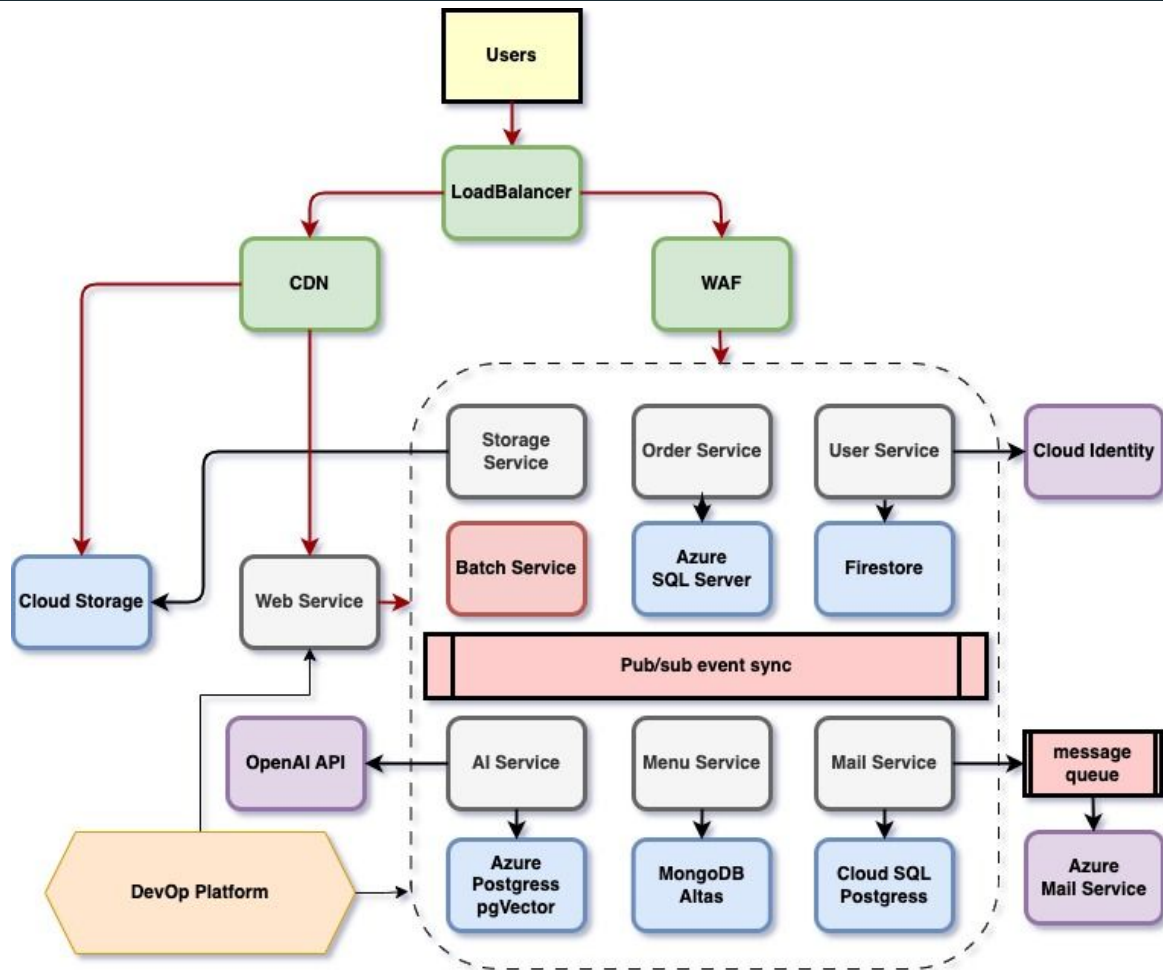
<https://ntuartfest28th.com/>



# System Architecture

overview

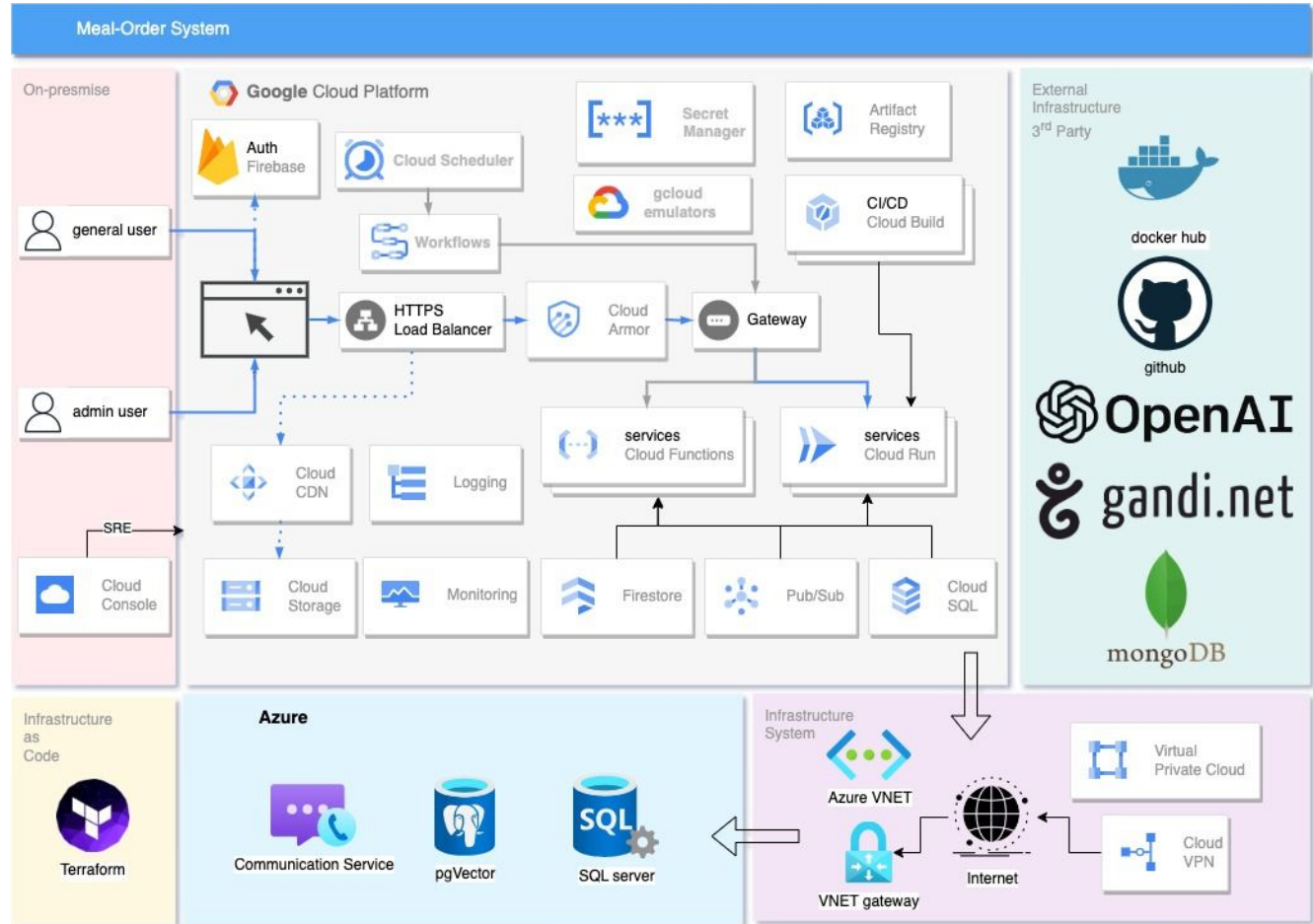
micro service  
+  
event driven



# Infra

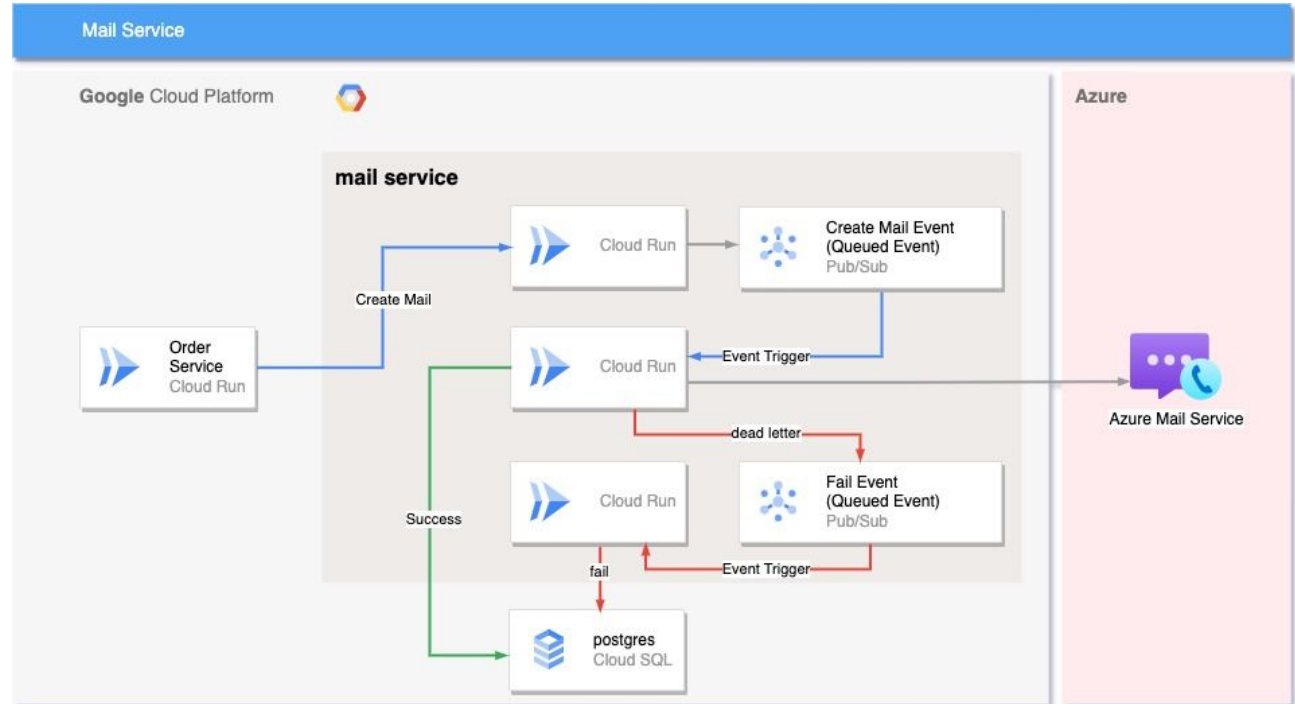
GCP Resource  
Created By  
Terraform (IaC)

<https://github.com/leon123858/tsmc-meal-order/tree/main/infra>



# mail service HA structure

message  
queue  
+  
dead letter





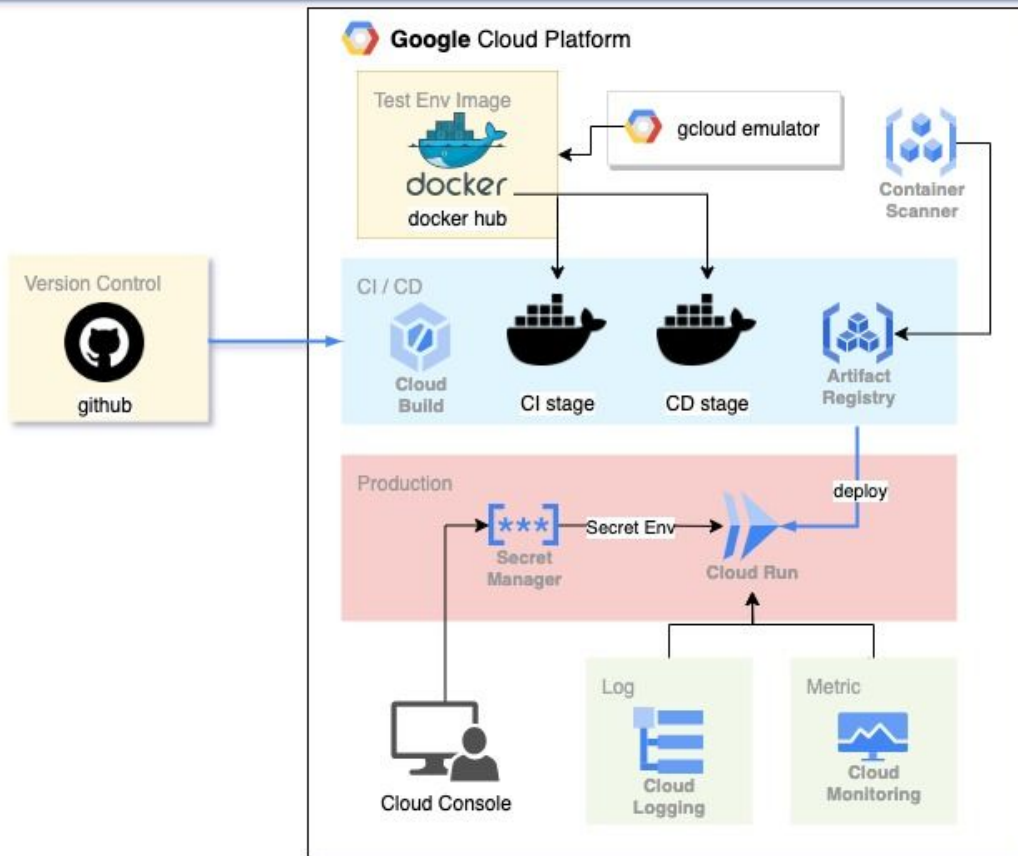
# DevOp

CI / CD  
pipeline

+

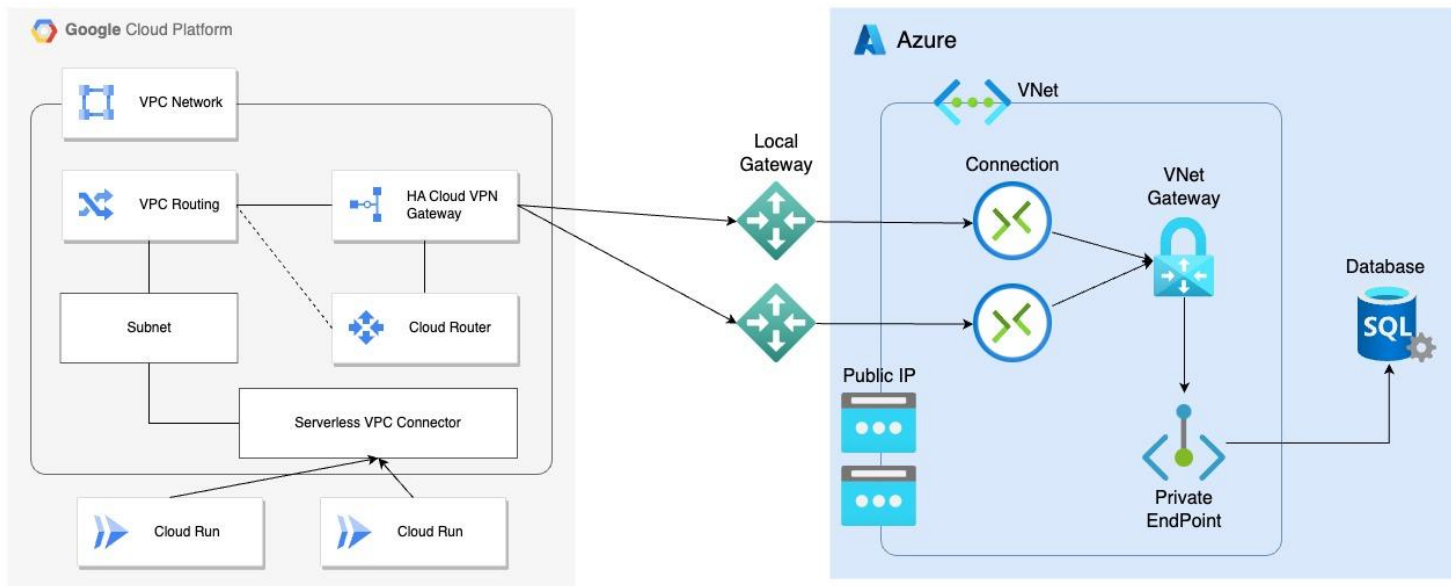
log & monitor

DevOp



# VPN

建立 S2S VPN 來提高資料安全性，並且使用BGP 的自動容錯移轉來確保VPN 的高可用性。



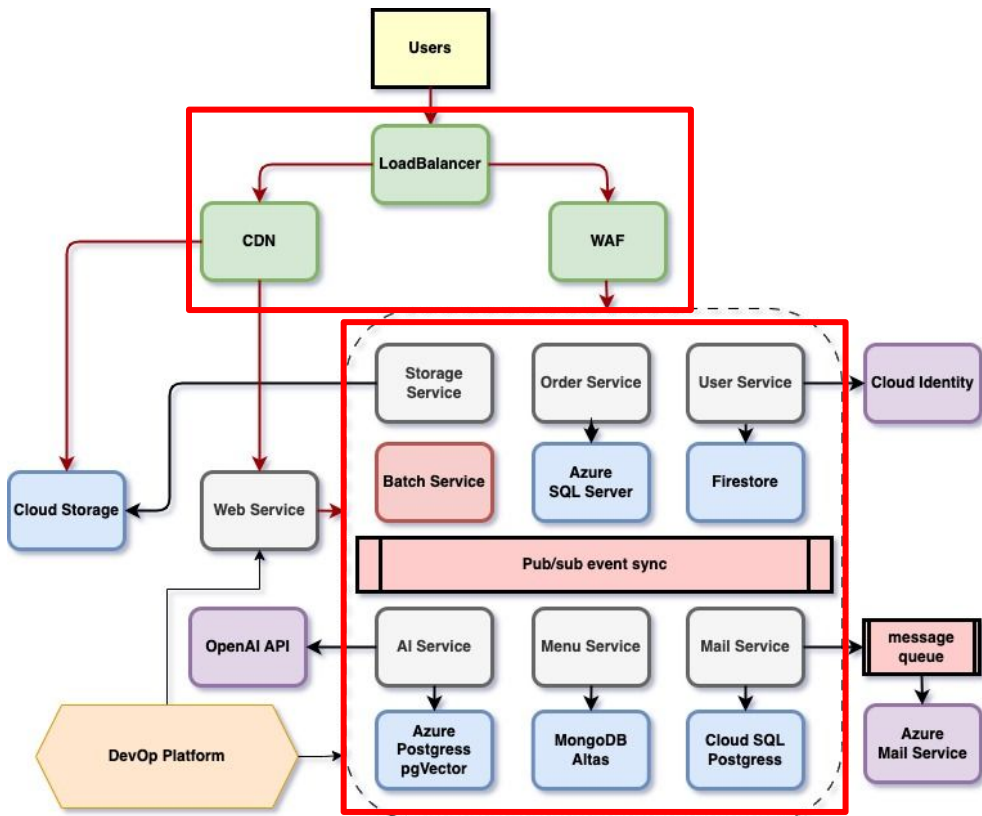


# Monitor Metrics

# Monitor

監看關鍵

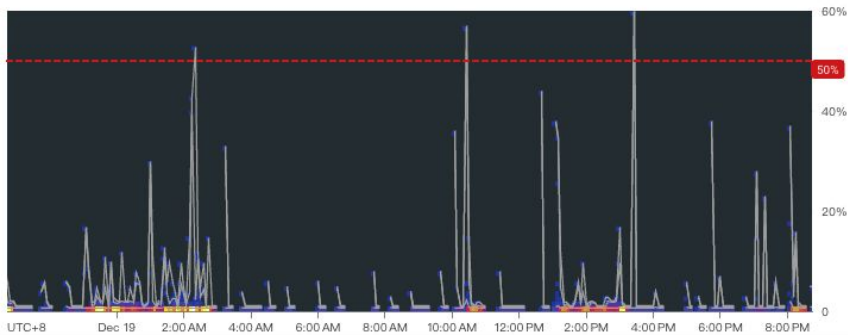
LoadBalancer  
+  
Compute Instance



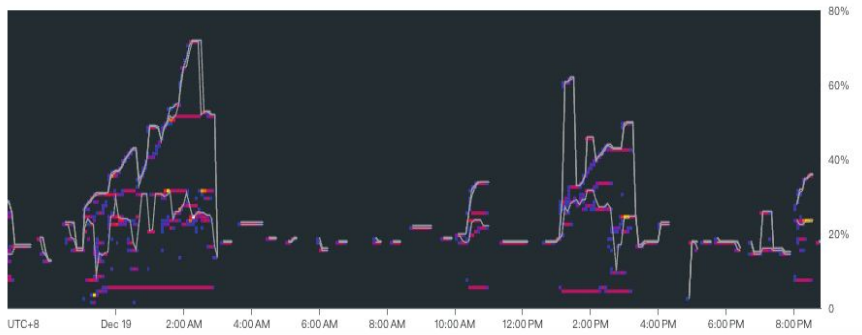
# Monitor Instance

## 監看 CPU, Mem, throughput

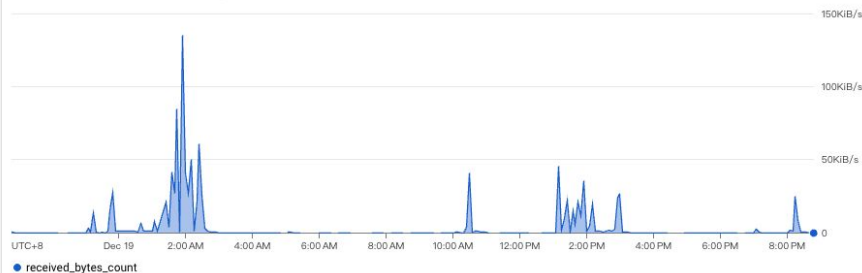
Container CPU Utilization [SUM]



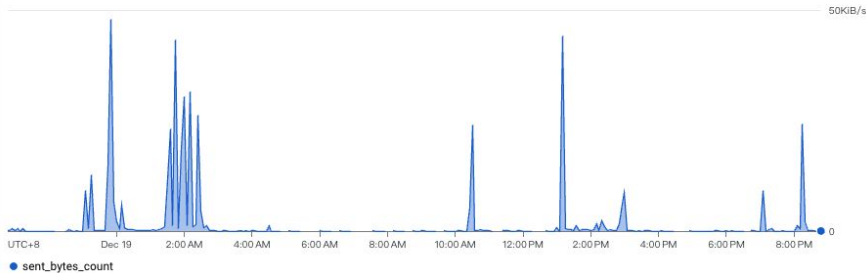
Container Memory Utilization [SUM]



Cloud Run Revision - Received Bytes [SUM]



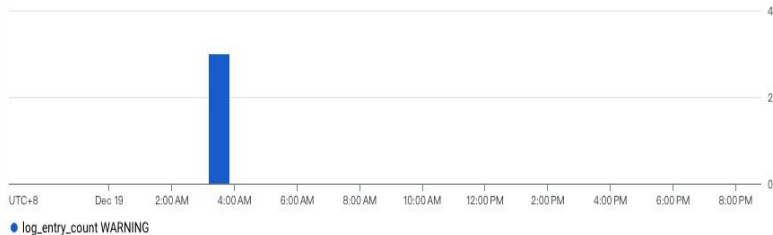
Cloud Run Revision - Sent Bytes [SUM]



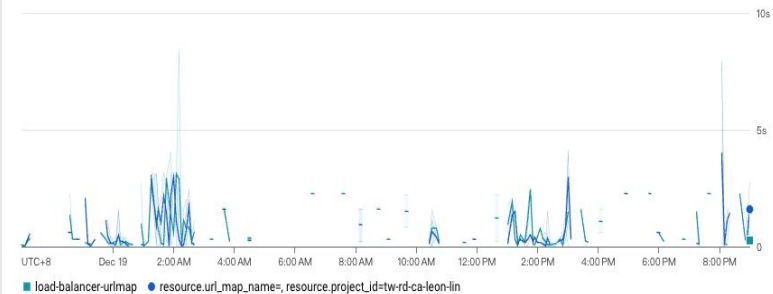
# Monitor LB

## 確認入口流量 + 後端狀態

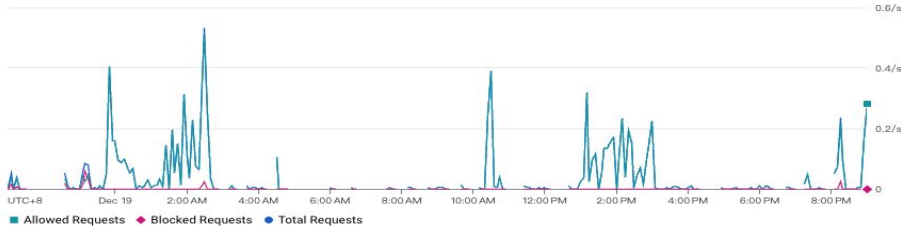
HTTP/S Load Balancer Logs By Severity



Backend Latency (95th Percentile) by URL Map



Requests



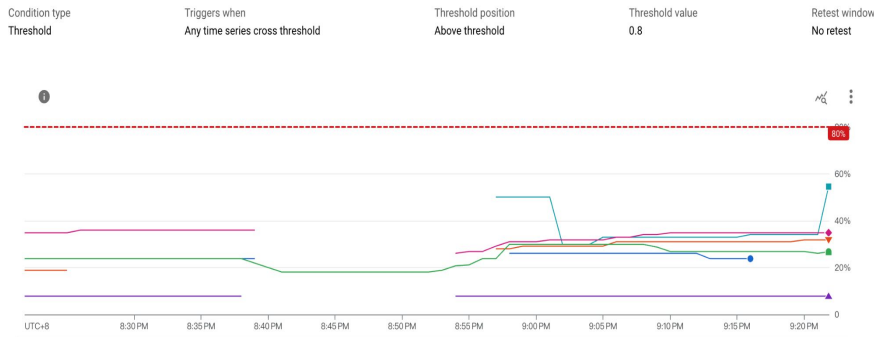
Backend Target	Backend	5xx Error Ratio ↓	Backend Latency (95th Percentile)	Total Latency (95th Percentile)	Health	Location
menu-backend	menu-neg	0%	2,997ms	2,997ms	N/A	asia-east1
order-backend	order-neg	0%	3,099ms	3,099ms	N/A	asia-east1
storage-backend	storage-neg	0%	392ms	392ms	N/A	asia-east1
user-backend	user-neg	0%	96ms	97ms	N/A	asia-east1
web-backend	web-neg	0%	1,373ms	1,373ms	N/A	asia-east1
ai-backend	ai-neg	—	—	—	N/A	asia-east1
mail-backend	mail-neg	—	—	—	N/A	asia-east1
load-balancer-bucket	<a href="#">meal-order-static</a>	—	—	—	N/A	global

# Monitor Alert 爆預算 & 後端服務中斷 email 警告專案持有者

<input type="checkbox"/>	Budget name <span>↑</span>	Budget period	Budget type	Applies to	Trigger alerts at	Spend and budget amount
<input type="checkbox"/>	<a href="#">tw-rd-ca-leon-lin</a>	Monthly	Specified amo...	1 project and 6 credit types	▼ 80% and 100%	<div><div></div></div> \$41.90 / \$50.00 Includes -\$2.73 credit

Name	5xx Error Ratio	↓	Backend Latency (95th Percentile)	Total Latency (95th Percentile)	Forwarding Rules	Health Status
<a href="#">load-balancer-urlmap</a>	0%		1,338ms	1,356ms	34.149.240.181	✔ 7 backend services (0 instance groups, 7 network endpoint groups) 1 backend bucket

## Cloud Run Revision - Container Memory Utilization



## Summary

Incidents firing

0

Incidents acknowledged

0

Alert policies

1

[View all](#)



# Unit Test







# Unit Test - User

在 Service Layer 達到 78.2% 的 Test Coverage。

```
Running script: go test ./... -p=1 -cover=true
github.com/leon123858/tsmc-meal-order/user [no test files]
github.com/leon123858/tsmc-meal-order/user/controller [no test files]
github.com/leon123858/tsmc-meal-order/user/docs [no test files]
github.com/leon123858/tsmc-meal-order/user/model [no test files]
github.com/leon123858/tsmc-meal-order/user/service 0.273s coverage: 78.2% of statements
github.com/leon123858/tsmc-meal-order/user/utils [no test files]
```

# Unit Test - Menu

在 Domain Layer 達到平均 90% 的 Test Coverage。

>  Menu	<div><div></div>50%</div>
✓ {> } Validations	<div><div></div>100%</div>
>  FoodItemCreateValidator	<div><div></div>100%</div>
>  FoodItemValidator	<div><div></div>100%</div>
>  MenuCreateValidator	<div><div></div>100%</div>

總共撰寫了 34 個 Unit Test。

# Unit Test - Order

在 Domain Layer 達到平均 93% 的 Test Coverage。

> 📁 OrderedFoodItem	100%
> 📁 Order	86%

> ✓ OrderedFoodItemTests (4 tests) Success  
> ✓ OrderServiceTest (26 tests) Success  
> ✓ OrderTests (4 tests) Success

在 Application Service Layer 達到平均 98% 的 Test Coverage。

✓ 📁 OrderService	98%
🔗 OrderService(IOrderRepository,IFoodItemRepository,IUserRepository,IMailService)	100%
> 📦 GetOrder(User,Guid)	100%
> 📦 CreateOrder(User,User,CreateOrderWebDTO)	100%
> 📦 ConfirmOrder(User,Guid)	100%
> 📦 DeleteOrder(User,Guid)	100%
> 📦 GetOrders(User)	94%
> 📦 NotifyCustomers(MealType)	94%

# Unit Test - CI / CD

有將 Unit Test 加入 CI / CD 流程中, 會在 Cloud Build 建置時確認是否通過測試。

```
Running script: go test ./... -p=1 -cover=true
github.com/leon123858/tsmc-meal-order/user [no test files]
github.com/leon123858/tsmc-meal-order/user/controller [no test files]
github.com/leon123858/tsmc-meal-order/user/docs [no test files]
github.com/leon123858/tsmc-meal-order/user/model [no test files]
github.com/leon123858/tsmc-meal-order/user/service 0.273s coverage: 78.2% of statements
github.com/leon123858/tsmc-meal-order/user/utils [no test files]
```

Starting test execution, please wait...

A total of 1 test files matched the specified pattern.

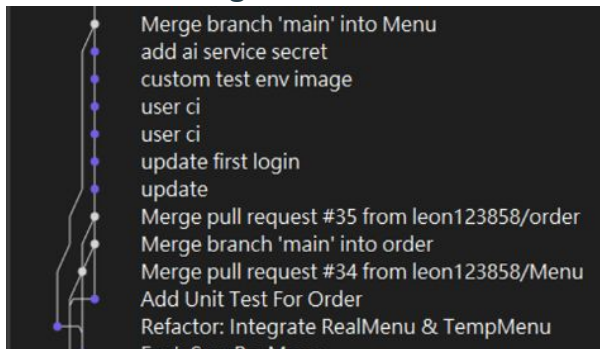
Passed! - Failed: 0, Passed: 41, Skipped: 0, Total: 41, Duration: 680 ms - core\_test.dll (net7.0)



# 12 Factors

# 12-Factors

1. **Codebase** : version control & single source of truth



2. **Dependencies** : specific package versions

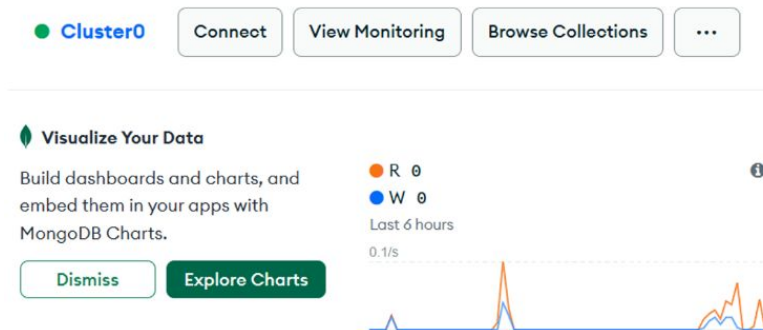
```
ItemGroup>
<PackageReference Include="AutoMapper.Extensions.Microsoft.DependencyInjection" Version="12.0.1" />
<PackageReference Include="FluentValidation.DependencyInjectionExtensions" Version="11.8.0" />
<PackageReference Include="Microsoft.AspNetCore.OpenApi" Version="7.0.13" />
<PackageReference Include="Microsoft.VisualStudio.Azure.Containers.Tools.Targets" Version="1.17.0" />
<PackageReference Include="MongoDB.Driver" Version="2.22.0" />
<PackageReference Include="Newtonsoft.Json" Version="13.0.3" />
<PackageReference Include="Swashbuckle.AspNetCore" Version="6.5.0" />
```

# 12-Factors

3. **Config** : Keep configs in the cloud platform, instead of the version control tools  
環境變數 (3)

名稱	值
SERVER_PORT	:8080
ASPNETCORE_ENVIRONMENT	Production
MONGO_PASSWORD	密鑰 : <a href="#">menu-secret-MONGO_PASSWORD:latest</a>

4. **Backing Services** : Loosely coupling with other cloud services or databases



# 12-Factors

## 5. Build, release, run : Cloud Build & Cloud Run on GCP



成功: - ai-trigger

最新版本

[2023/12/16 中午12:37](#)

持續時間

00:01:11

觸發條件說明

-

來源

[leon123858/tsmc-meal-order](#)

修訂版本

[7ace4b7](#)

建構作業記錄

最新



[查看全部](#)

平均持續時間 ?

00:01:23

成功率 - 失敗率 ?

100% - 0%



成功: - mail-trigger

最新版本

[2023/12/16 中午12:37](#)

持續時間

00:01:00

觸發條件說明

-

來源

[leon123858/tsmc-meal-order](#)

修訂版本

[7ace4b7](#)

建構作業記錄

最新



[查看全部](#)

平均持續時間 ?

00:01:06

成功率 - 失敗率 ?

100% - 0%



# 12-Factors

## 6. Processes :

- a. processes have no dependency on local memory (within container)
- b. no shared local memory between processes
- c.  $(a+b) \Rightarrow$  stateless

## 7. Port binding :

- a. Unified port protocol between all apps, such as 443: HTTPS

# 12-Factors

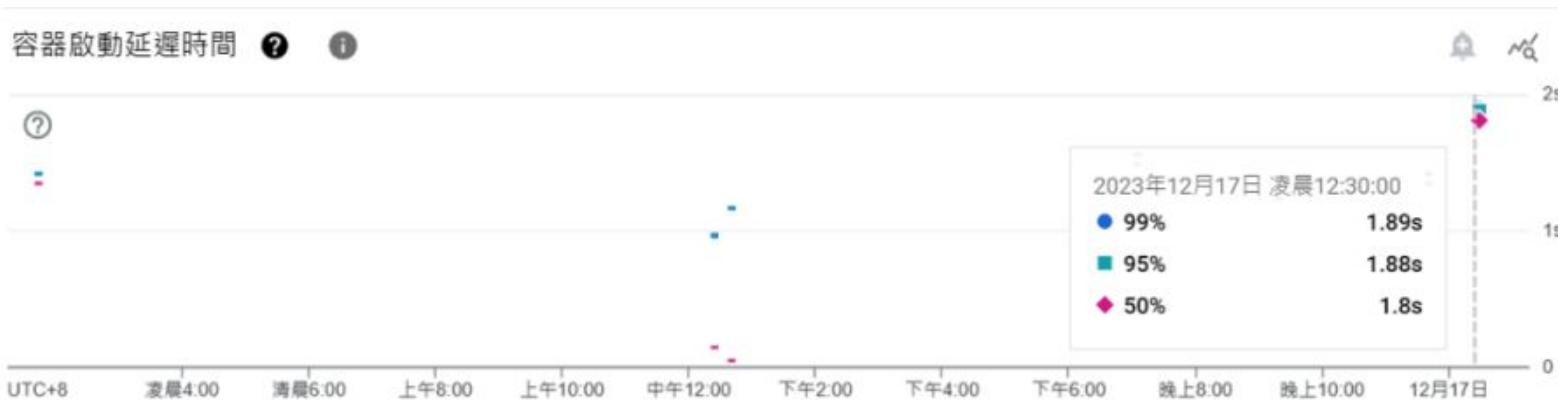
## 8. **Concurrency** : Auto-scaling handled by GCP Cloud Run autoscaler

In addition to the rate of incoming requests or events, the number of instances scheduled is impacted by:

- a. The CPU utilization of existing instances when they are processing requests or events over a one minute window, targeting to keep scheduled instances to a 60% CPU utilization.
- b. The current request concurrency, compared to the maximum concurrency over a one minute window.
- c. The maximum number of instances setting
- d. The minimum number of instances setting
- e. The Cloud Run autoscaler evaluates these every 5 seconds.

# 12-Factors

## 9. Disposability : handled by serverless container



# 12-Factors

## 10. Dev/Prod Parity : configs for different envs.

🔗 appsettings.Development.json  
🔗 appsettings.Production.json

```
"MenuDatabase": {  
  "DatabaseName": "MenuDatabase",  
  "RealCollectionName": "MenusBackup",  
  "TempCollectionName": "Menus",  
  "UserName": "bevis",  
  "Password": "default",  
  "Cluser": "cluster0.ujzhjoz.mongodb.net/"  
},  
"WebApi": {  
  "UserUrl": "https://user-kt6w747drq-de.a.run.app/api/user",  
  "RecUrl": "https://ai-kt6w747drq-de.a.run.app/api/ai"  
},  
"Logging": {  
  "LogLevel": {  
    "Default": "Information",  
    "Microsoft.AspNetCore": "Warning"  
  }  
},  
"AllowedHosts": "*"}
```

	Traditional app	Twelve-factor app
Time between deploys	Weeks	Hours
Code authors vs code deployers	Different people	Same people
Dev vs production environments	Divergent	As similar as possible

```
"MenuDatabase": {  
  "DatabaseName": "MenuDatabase",  
  "RealCollectionName": "MenusBackup",  
  "TempCollectionName": "Menus",  
  "UserName": "bevis",  
  "Password": "default",  
  "Cluser": "cluster0.ujzhjoz.mongodb.net/"  
},  
"WebApi": {  
  "UserUrl": "https://user-kt6w747drq-de.a.run.app/api/user",  
  "RecUrl": "https://ai-kt6w747drq-de.a.run.app/api/ai"  
},  
"Logging": {  
  "LogLevel": {  
    "Default": "Information",  
    "Microsoft.AspNetCore": "Warning"  
  }  
},  
"Kestrel": {  
  "Endpoints": {  
    "Http": {  
      "Url": "http://0.0.0.0:8080"  
    }  
  }  
},  
"AllowedHosts": "*"}
```

# 12-Factors

11. **Logs (or, Telemetry)** : GCP is responsible for the storage of log files



menu

地區 : asia-east1

網址 : <https://menu-kt6w747drq-de.a.run.app>



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篩選 搜尋所有欄位和值

嚴重性	時間戳記	摘要
>	2023-12-17 00:39:00.744 香港時間	GET 200 2.67 KB 67 ms Chrome 120 https://menu-kt6w747drq-de.a.run.app/api/menu
>	2023-12-17 00:41:02.516 香港時間	GET 200 2.67 KB 62 ms Chrome 120 https://menu-kt6w747drq-de.a.run.app/api/menu
>	2023-12-17 00:41:02.596 香港時間	GET 200 2.67 KB 55 ms Chrome 120 https://menu-kt6w747drq-de.a.run.app/api/menu

# 12-Factors

## 12. Admin Process : Utilize GCP WorkFlows to maintain the system

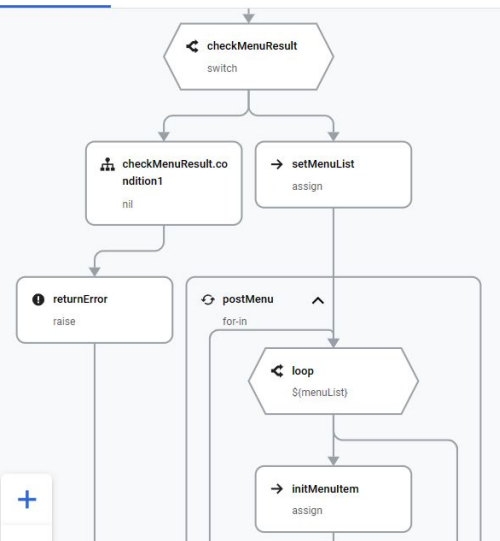
程式碼

編輯

```
1 - syncMenu:
2   call: http.post
3   args:
4     url: "https://menu-kt6w747drq-de.a.run.app/api/menu/sync"
5     headers:
6       Content-Type: application/json
7   result: syncResult
8 - logSync:
9   call: sys.log
10  args:
11    text: ${json.encode_to_string(syncResult.body)}
12 - getMenu:
13   call: http.get
14   args:
15     url: "https://menu-kt6w747drq-de.a.run.app/api/menu"
16   result: menuResult
17 - checkMenuResult:
18   switch:
19     - condition: ${menuResult.body["result"]} == false}
20     next: returnError
21     next: setMenuList
22 - setMenuList:
23   assign:
24     - menuList: ${menuResult.body.data}
25 - postMenu:
```

視覺化內容

MAIN



Thank you!



<https://ntuartfest28th.com/>