

Aplicativo web de auxílio à navegação aérea

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Departamento de Informática
PUC-Rio

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Outline

1 Introdução

2 Arquitetura

3 Projeto

4 Teste de carga

5 Conclusão

Introdução



Figure: Flight Bag (Wikimedia CC BY-SA 2.0)

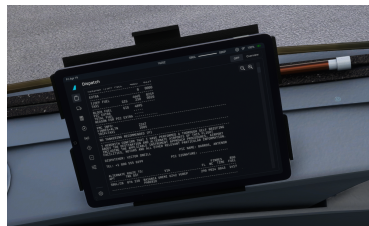


Figure: Electronic Flight Bag
MSFS2020 / FlyByWire
Simulations

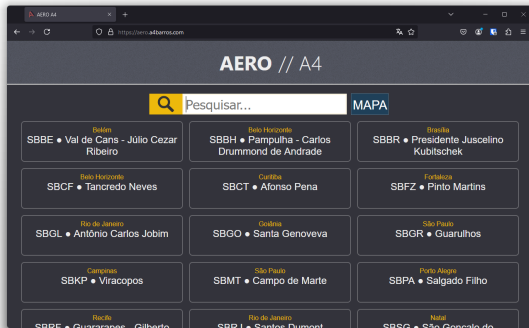
Introdução

■ Simulação de voo

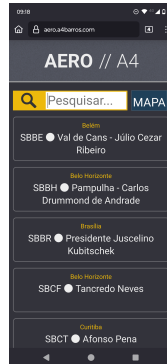
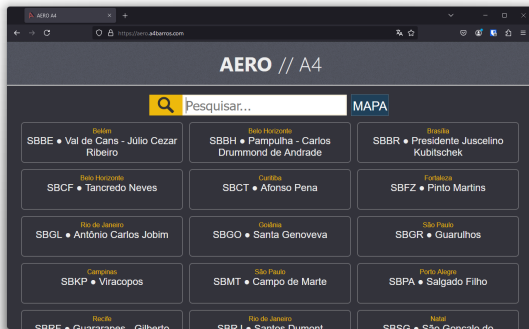
Introdução

- Simulação de voo
- AISWEB, METAR-TAF, SIGMET

UI



UI



Servidor

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Compute

Instances *in a4server (root) compartment*

An [instance](#) is a compute host. Choose between virtual machines (VMs) and bare metal instances. The image that you use to launch an instance determines its operating system and other software.

Create instance Actions ▾

<input type="checkbox"/>	Name	State	Public IP	Private IP	Shape	OCPU count	Memory (GB)	Availability domain
<input type="checkbox"/>	a4metal Always Free	Running	167.234.237.41	10.0.1.138	VM.Standard.E2.1.Micro	1	1	AD-1
<input type="checkbox"/>	a4server Always Free	Running	164.152.43.215	10.0.0.94	VM.Standard.E2.1.Micro	1	1	AD-1

0 selected Showing 2 items < 1 of 1 > 

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Arquitetura

■ Docker/Docker Compose

Arquitetura

- Docker/Docker Compose
- Banco: MariaDB

Arquitetura

- Docker/Docker Compose
- Banco: MariaDB
- Backend: Flask FastAPI

Arquitetura

- Docker/Docker Compose
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- Frontend: Jinja2

Arquitetura

- Docker/Docker Compose
- Banco: MariaDB
- Backend: Flask FastAPI
- Frontend: Jinja2
- Observabilidade: GoAccess

Arquitetura

- Docker/Docker Compose
- Banco: MariaDB
- Backend: Flask FastAPI
- Frontend: Jinja2
- Observabilidade: GoAccess
- Outros subdomínios

Uso de recursos

- 500 acessos simultâneos (usando Locust)

```
0[|||||] 41.5% Tasks: 60, 220 thr, 79 kthr; 2 running
1[|||||] 100.0% Load average: 0.17 0.09 0.16
Mem[|||||] 566M/957M Uptime: 4 days, 00:49:36
Swp[|||||] 0K/0K

  PID USER      PRI  NI  VIRT   RES   SHR  S  CPU% MEM%  TIME+  Command
151468 root        20    0  295M  130M  14464  S   0.0  13.7   0:15.41 /opt/venv/bin/python3 -u -m fastapi run server.py --h
151647 root        20    0  295M  130M  14464  S   0.0  13.7   0:00.16 /opt/venv/bin/python3 -u -m fastapi run server.py --h
151651 root        20    0  295M  130M  14464  S   0.0  13.7   0:00.00 /opt/venv/bin/python3 -u -m fastapi run server.py --h
151652 root        20    0  295M  130M  14464  S   0.0  13.7   0:00.00 /opt/venv/bin/python3 -u -m fastapi run server.py --h
151653 root        20    0  295M  130M  14464  S   0.0  13.7   0:00.00 /opt/venv/bin/python3 -u -m fastapi run server.py --h
151654 root        20    0  295M  130M  14464  S   0.0  13.7   0:00.00 /opt/venv/bin/python3 -u -m fastapi run server.py --h
151655 root        20    0  295M  130M  14464  S   0.0  13.7   0:00.00 /opt/venv/bin/python3 -u -m fastapi run server.py --h
151735 root        20    0  295M  130M  14464  S   0.0  13.7   0:00.00 /opt/venv/bin/python3 -u -m fastapi run server.py --h
151910 root        20    0  295M  130M  14464  S   0.0  13.7   0:00.18 /opt/venv/bin/python3 -u -m fastapi run server.py --h
151911 root        20    0  295M  130M  14464  R  81.9  13.7   0:39.84 /opt/venv/bin/python3 -u -m fastapi run server.py --h
151194 lxd         20    0  1375M 90456 10112  S   0.0   9.2   0:00.73 mariadb
151548 lxd         20    0  1375M 90456 10112  S   0.0   9.2   0:00.18 mariadb
151549 lxd         20    0  1375M 90456 10112  S   0.0   9.2   0:00.00 mariadb
151550 lxd         20    0  1375M 90456 10112  S   0.0   9.2   0:00.00 mariadb
151551 lxd         20    0  1375M 90456 10112  S   0.0   9.2   0:00.04 mariadb
151556 lxd         20    0  1375M 90456 10112  S   0.0   9.2   0:00.00 mariadb
151557 lxd         20    0  1375M 90456 10112  S   0.0   9.2   0:00.00 mariadb
151623 lxd         20    0  1375M 90456 10112  S   0.0   9.2   0:00.01 mariadb
151650 lxd         20    0  1375M 90456 10112  S   0.0   9.2   0:01.49 mariadb
151912 lxd         20    0  1375M 90456 10112  S   0.0   9.2   0:00.00 mariadb
151913 lxd         20    0  1375M 90456 10112  S   0.0   9.2   0:00.00 mariadb
151916 lxd         20    0  1375M 90456 10112  S   0.0   9.2   0:00.00 mariadb
```


Diagrama da arquitetura

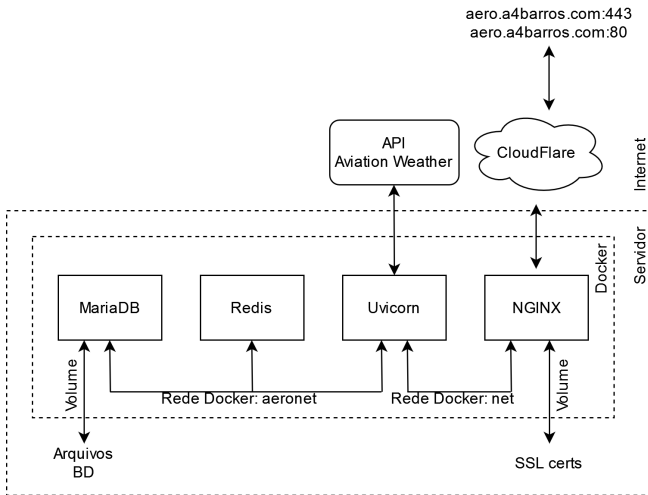
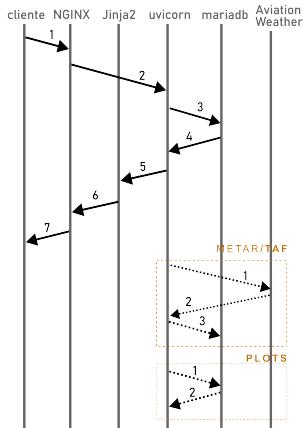
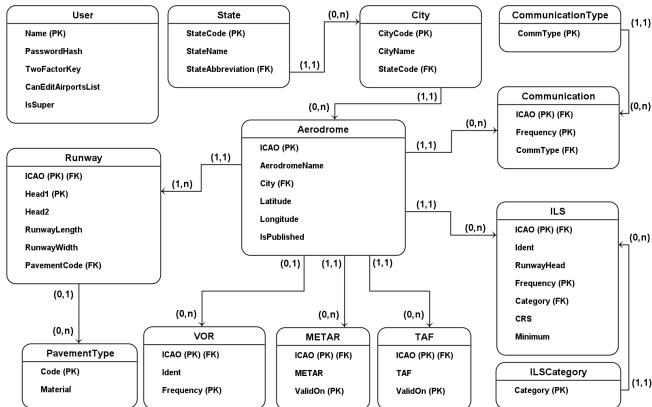


Diagrama de tempo



Tabelas



METAR

221300Z 04008KT 9000 FEW020 BKN100 30/23 Q1012

221300Z	METAR válido para dia 22 as 13:00 (UTC)
04008KT	Vento proa 040° com velocidade 08 nós (kt).
9000	Visibilidade 9000 metros.
FEW020	Poucas nuvens (1/8 a 2/8 do céu com nuvens) em 2000 pés de altitude.
BKN100	Nuvens broken (5/8 a 7/8 do céu com nuvens) em 10000 pés de altitude.
30/23	Temperatura 30°C e ponto de orvalho 23°C .
Q1012	O altímetro deve ser ajustado para 1012 hPa (29.88 inHg)

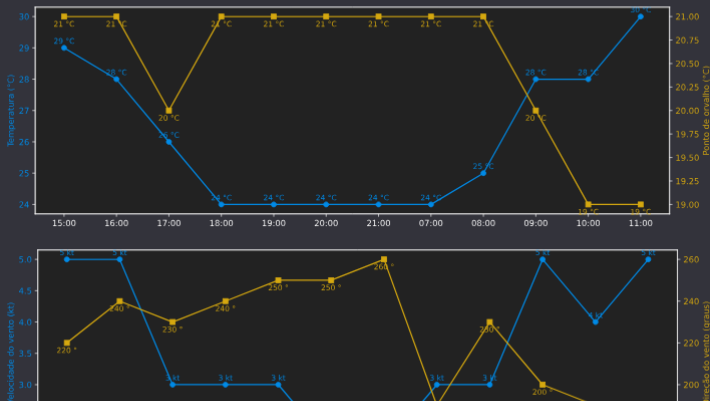
TAF

220859Z 2212/2312 06006KT 9999 SCT040 TX34/2217Z TN24/2309Z
BECMG 2215/2217 34013KT SCT040 FEW045TCU
TEMPO 2220/2222 TS SCT030 FEW035CB
BECMG 2222/2224 04008KT CAVOK
BECMG 2310/2312 SCT020 RMK PGX

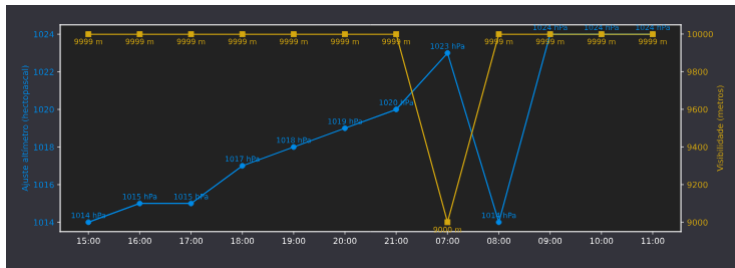
220859Z	Disponibilizado em 08:59Z no dia 22
2212/2312	Válido do dia 22 as 12:00Z até dia 23 as 12:00Z
06006KT	Vento proa 060° com velocidade 06 nós (kt).
9999	Visibilidade 9999 metros
SCT040	Nuvens espalhadas (3/8 a 4/8 do céu com nuvens) em 4000 pés de altitude.
TX34/2217Z	A temperatura máxima é de 34°C prevista de ocorrer dia 22 as 17:00 (UTC)
TN24/2309Z	A temperatura mínima é de 24°C prevista de ocorrer dia 23 as 09:00 (UTC)
BECMG 2215/2217 ▲	Condições previstas do dia 22 as 15:00 (UTC) até dia 22 as 17:00 (UTC)
34013KT	Vento proa 340° com velocidade 13 nós (kt).
SCT040	Nuvens espalhadas (3/8 a 4/8 do céu com nuvens) em 4000 pés de altitude.
FEW045TCU	Poucas nuvens (1/8 a 2/8 do céu com nuvens) em 4500 pés de altitude. Atenção: nuvens de grande extensão vertical.
TEMPO 2220/2222 ▼	Condições temporárias previstas do dia 22 as 20:00 (UTC) até dia 22 as 22:00 (UTC)

Histórico

SBJR // Jacarepaguá - Roberto Marinho

[< Voltar](#)

Histórico

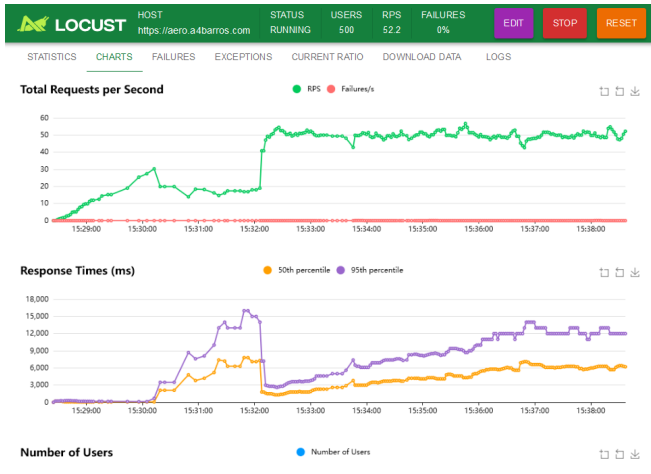


Sem cache

Modo desenvolvedor CloudFlare

Sem cache

Modo desenvolvedor CloudFlare

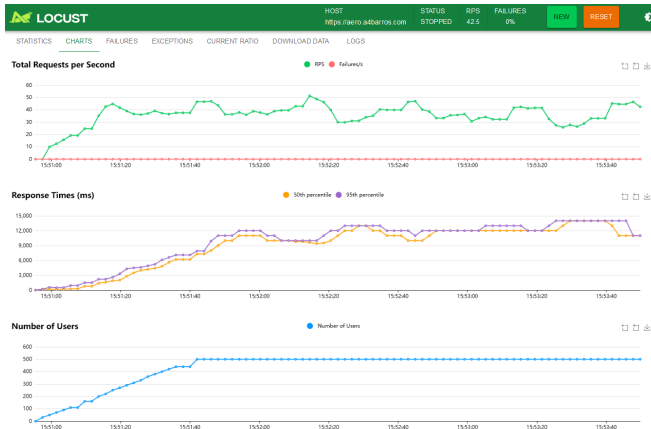


Cache Redis

Decorator Python `cache_it`

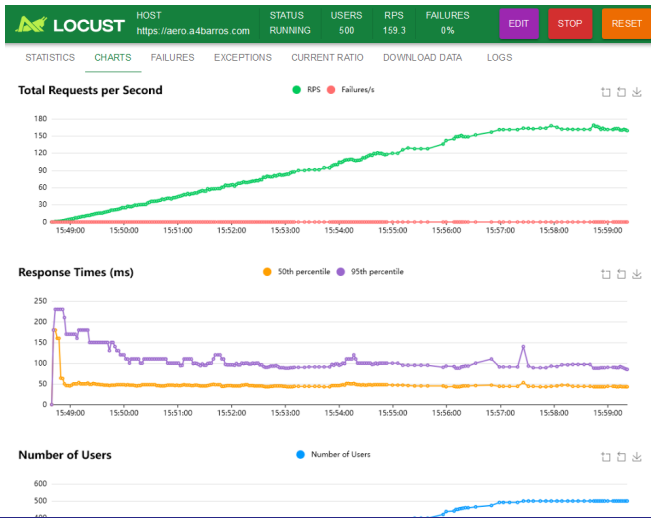
Cache Redis

Decorator Python cache_it



Cache NGINX

Cache NGINX



Demonstração

`https://aero.a4barros.com`

Obrigado

Obrigado!

Perguntas?