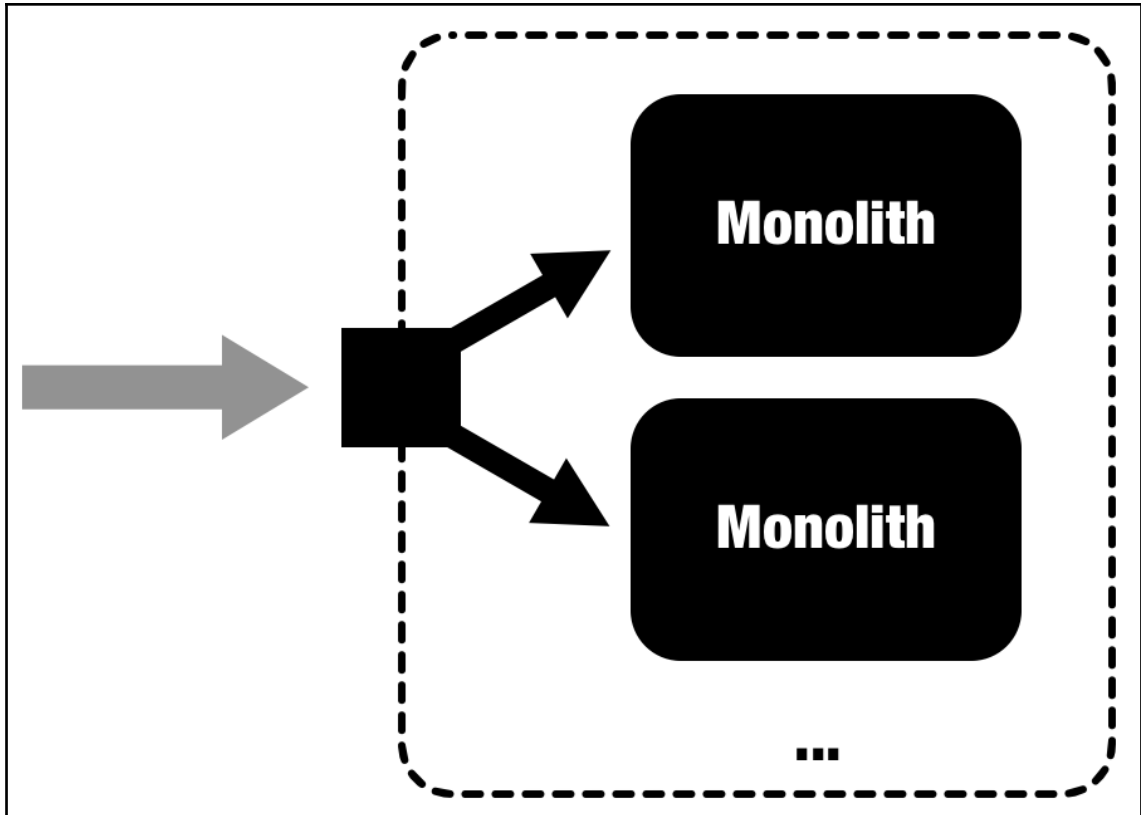
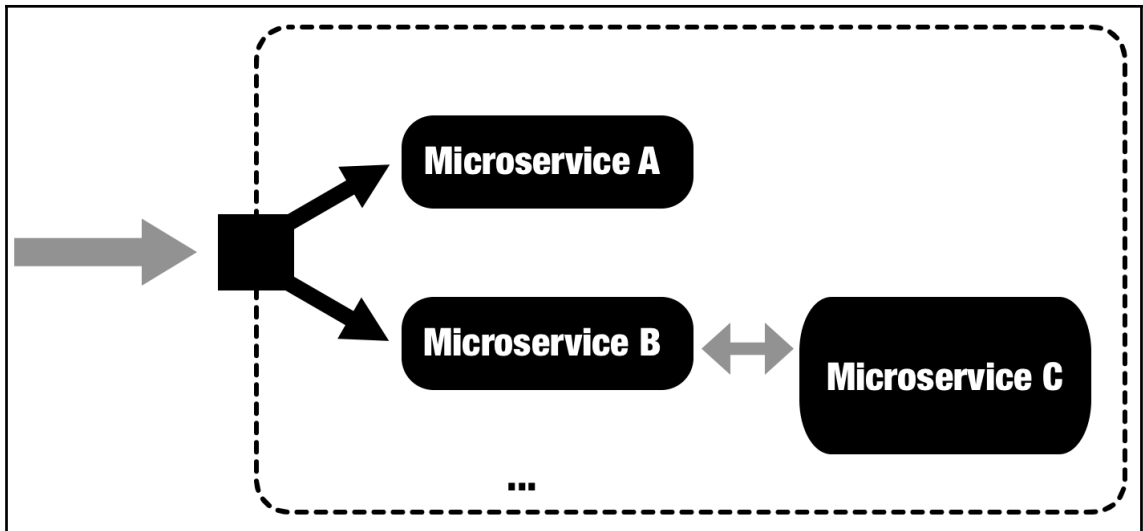
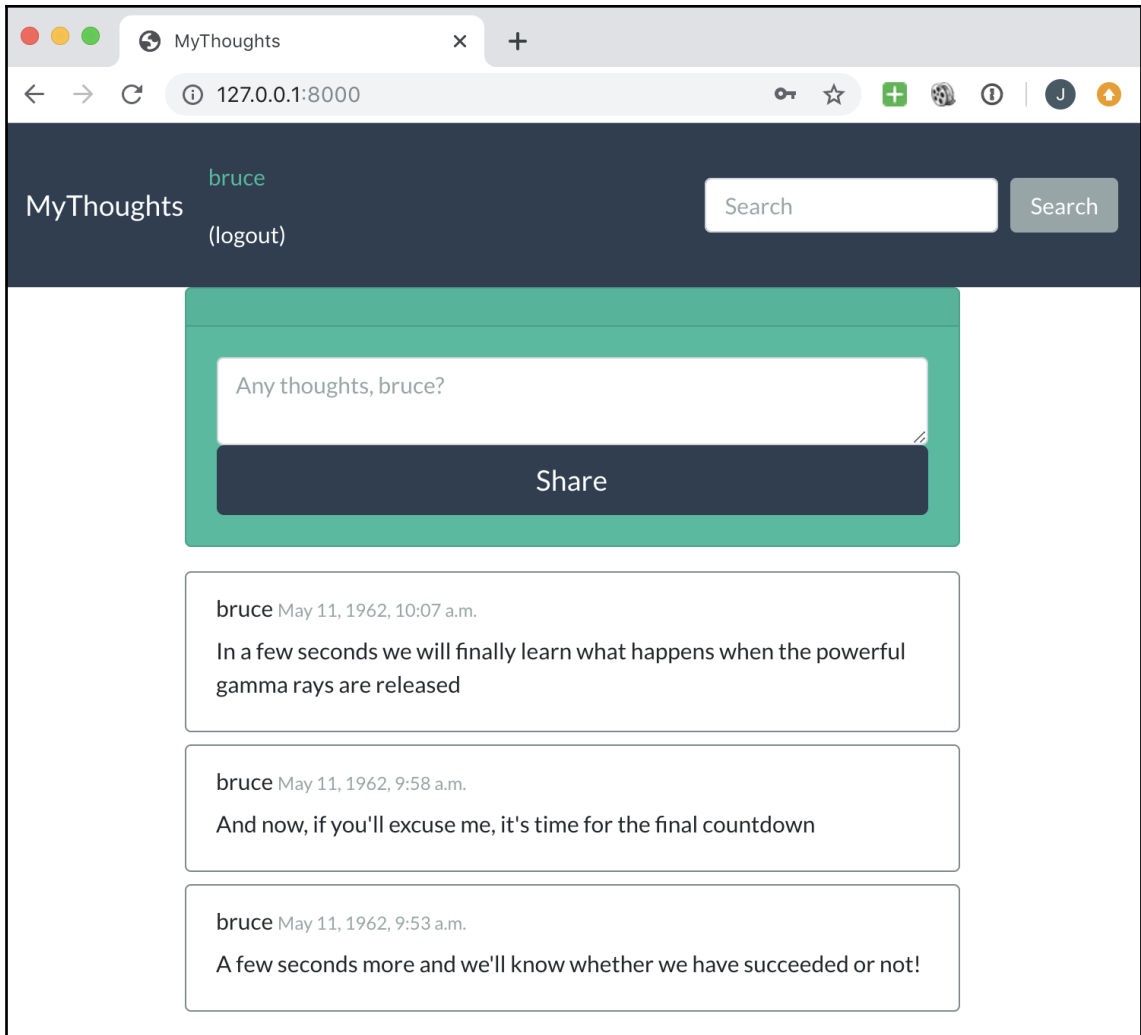
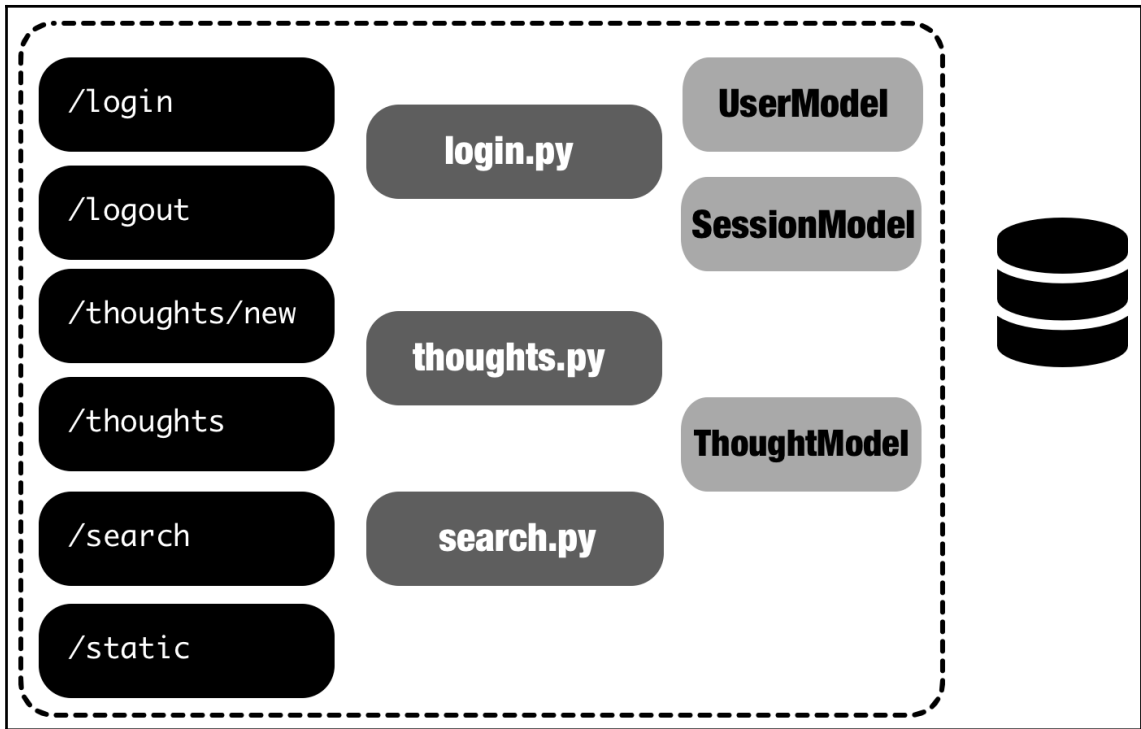


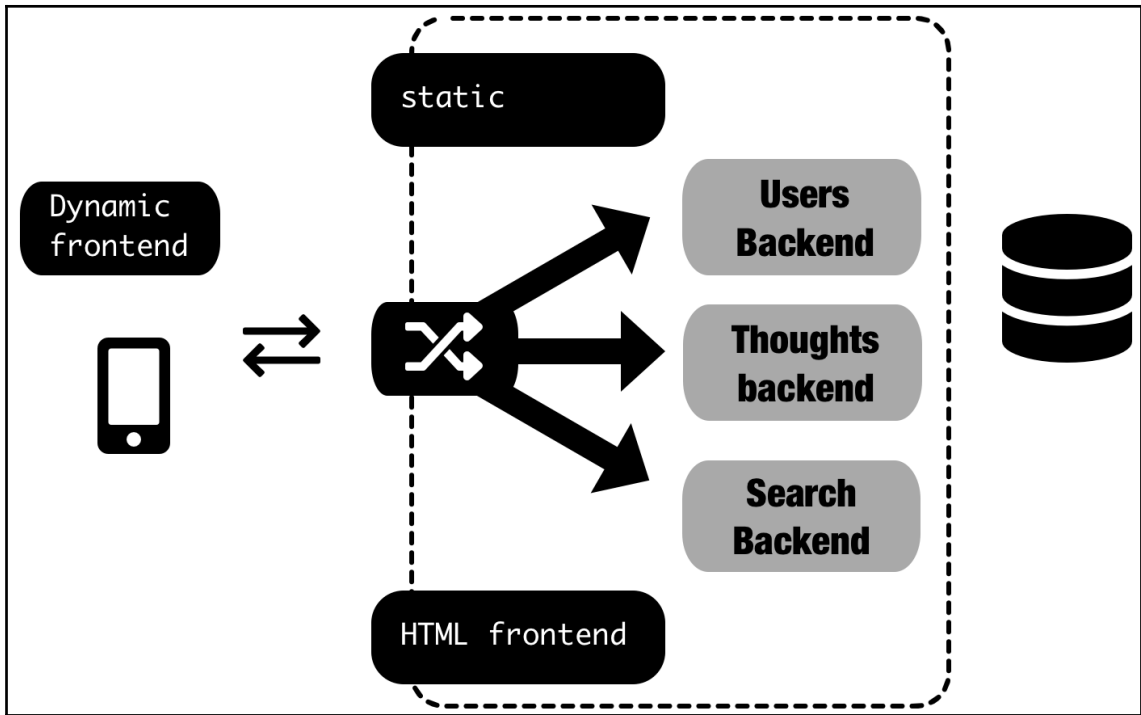
Chapter 1: Making the Move – Design, Plan, and Execute

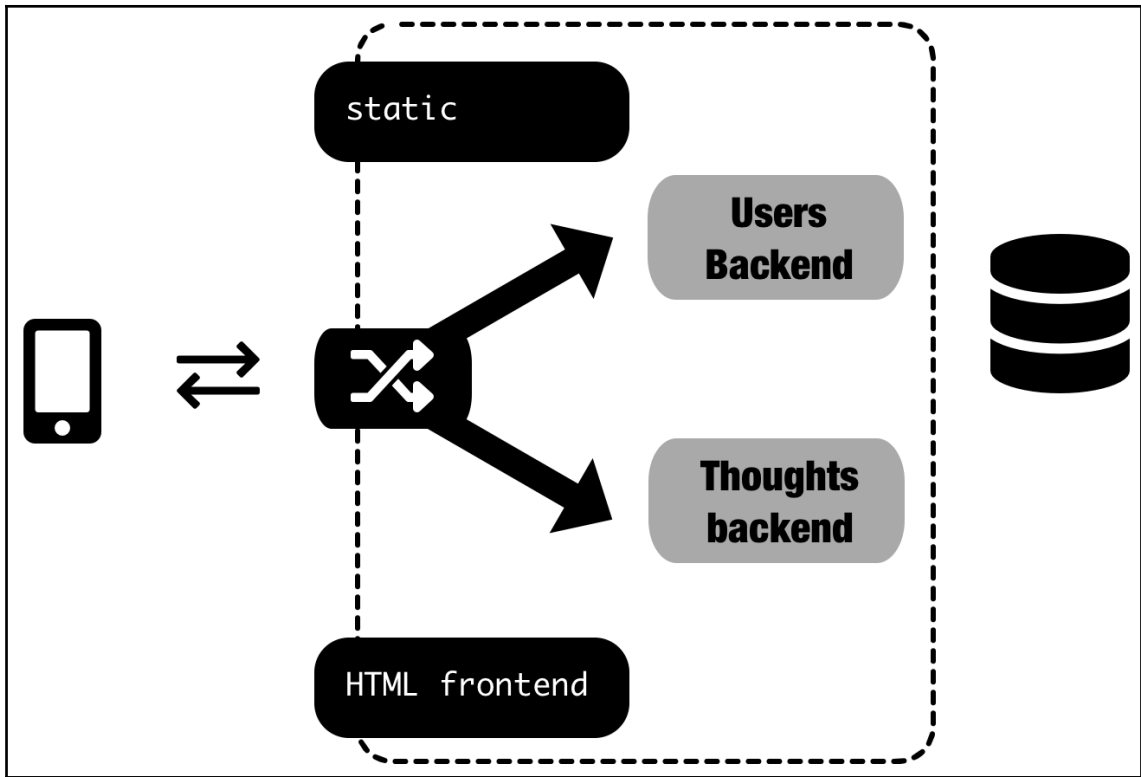


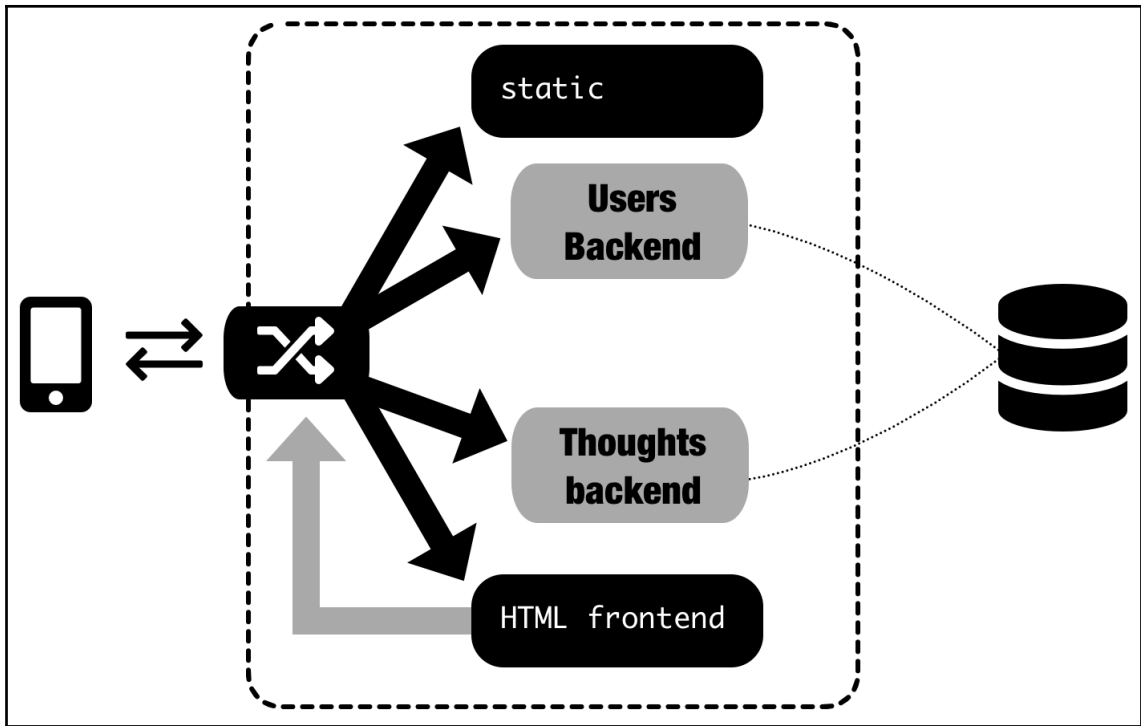


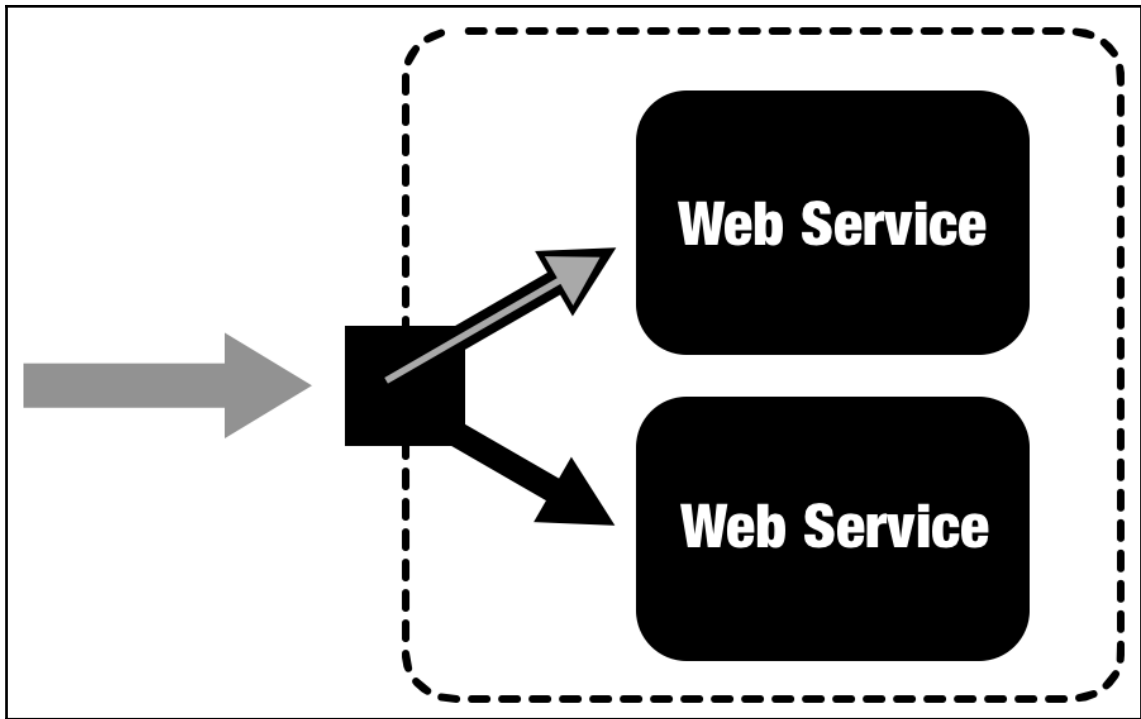


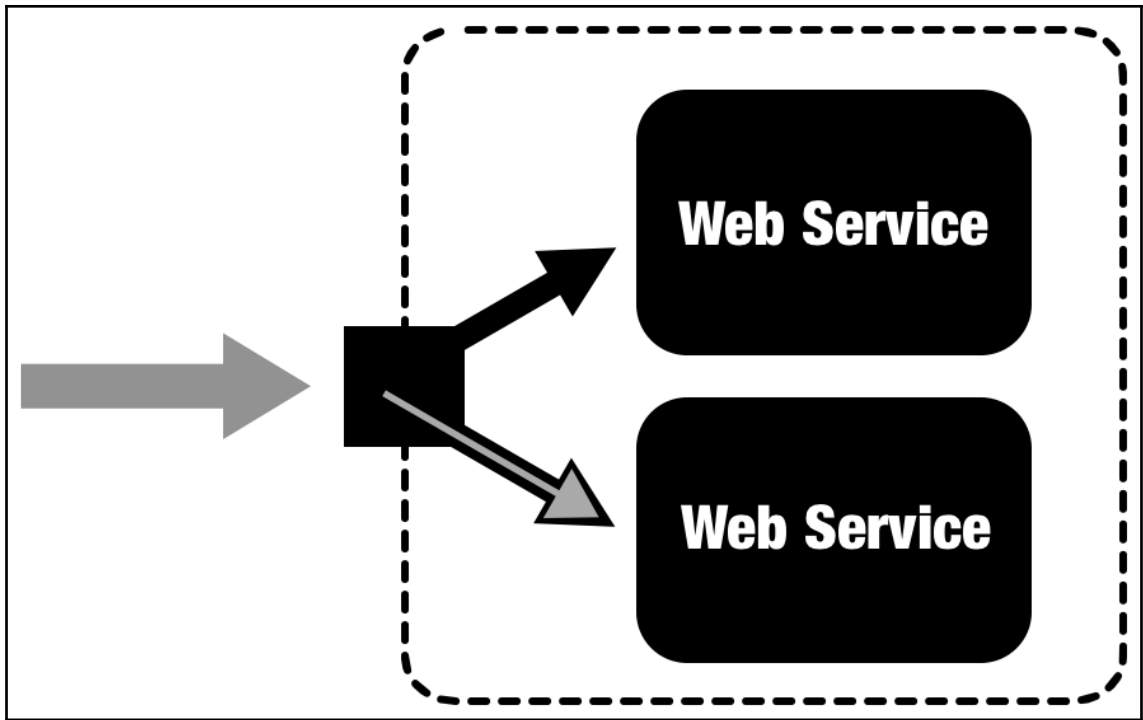




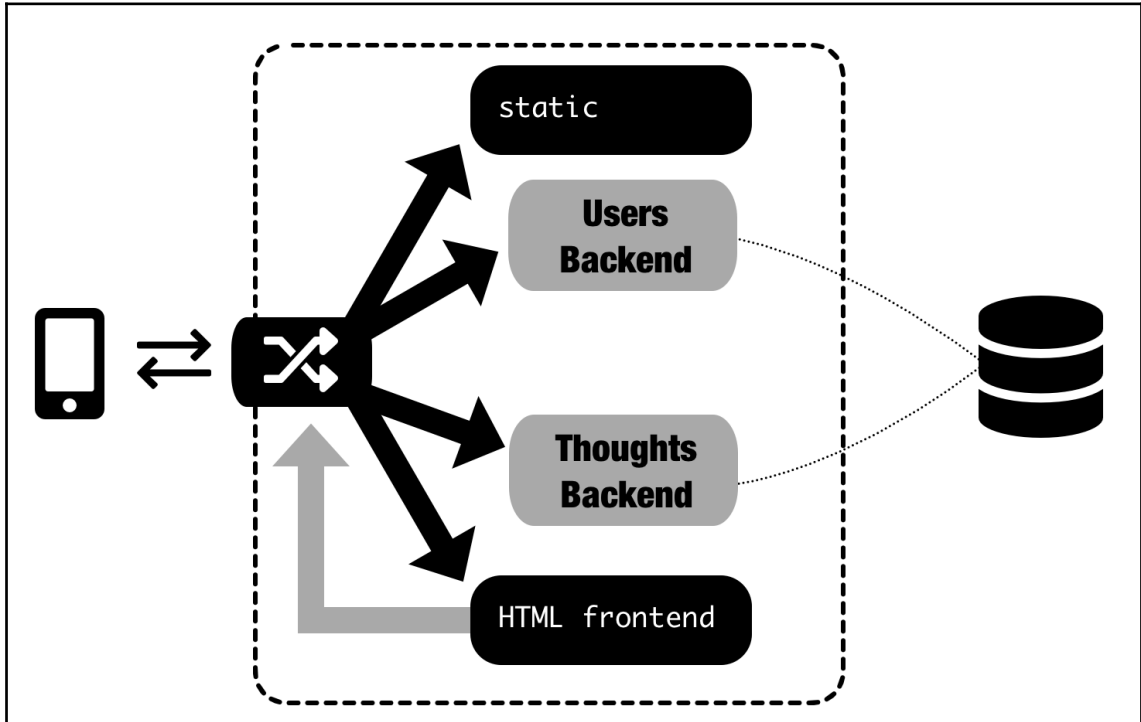








Chapter 2: Creating a REST Service with Python



Thoughts Backend API

127.0.0.1:5000

☆ + ⓘ 🌐 ⓘ 🤖 | J ⋮

Thoughts Backend API 0.1

[Base URL: /]
<http://127.0.0.1:5000/swagger.json>

A Simple CRUD API

api

API operations

▼

POST

/api/me/thoughts/

Create a new thought

GET

/api/me/thoughts/

Retrieves all the thoughts

GET

/api/thoughts/

Retrieves all the thoughts

GET

/api/thoughts/{thought_id}/

Retrieve a thought

admin

Admin operations

▼

DELETE

/admin/thoughts/{thought_id}/

Delete a thought

Models

▼

Thought

{

idinteger

usernamestring

textstring

timestampstring(\$date-time)

}

Models



Thought ▾ {

id	integer
username	string
text	string
timestamp	string(\$date-time)

}

Chapter 3: Build, Run, and Test Your Service Using Docker

055936d39205 FROM alpine

27214dad52e1 RUN apk update

e9ceec8cb924 RUN apk add python3

be086a75fe23 RUN mkdir -p /opt/

90c2d2f13901 COPY example.txt /opt/example.txt

325abcb5947 CMD python3 -c "print('Hello container!')"

Thoughts Backend API

127.0.0.1:8000

☆ + ⓘ 🌐 ⓘ 🛡️ | J ⋮

Thoughts Backend API^{0.1}

[Base URL: /]
<http://127.0.0.1:8000/swagger.json>

A Simple CRUD API

api

API operations

⌵

GET

/api/me/thoughts/

Retrieves all the thoughts

POST

/api/me/thoughts/

Create a new thought

GET

/api/thoughts/

Retrieves all the thoughts

GET

/api/thoughts/{thought_id}/

Retrieve a thought

admin

Admin operations

⌵

DELETE

/admin/thoughts/{thought_id}/

Delete a thought

Models

>

Thoughts Backend API

localhost:8000

Thoughts Backend API 0.1

[Base URL: /]
<http://localhost:8000/swagger.json>

A Simple CRUD API

api

API operations

POST

/api/me/thoughts/

Create a new thought

GET

/api/me/thoughts/

Retrieves all the thoughts

GET

/api/thoughts/

Retrieves all the thoughts

GET

/api/thoughts/{thought_id}/

Retrieve a thought

admin

Admin operations

Models

[Explore](#)
[Sign In](#)
[Pricing](#)
[Get Started](#)

Docker EE
 Docker CE
 Containers
 Plugins

Filters (1) [Clear All](#)

☐ Docker Certified

☐ Verified Publisher
Docker Certified And Verified Publisher Content

☐ Official Images
Official Images Published By Docker

Images

☐ Analytics
 ☐ Application Frameworks
 ☐ Application Infrastructure
 ☐ Application Services
 ☒ Base Images
 ☐ Databases
 ☐ DevOps Tools
 ☐ Featured Images
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 ☐ Monitoring
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 ☐ Programming Languages
 ☐ Security
 ☐ Storage

Operating Systems

☐ Linux
 ☐ Windows

1 - 19 of 19 available images.

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Ubuntu is a Debian-based Linux operating system based on free software.

Container

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ARM

ARM 64

386

PowerPC 64 LE

IBM Z

x86-64

Base Images

Operating Systems

busybox

Updated 23 minutes ago

Busybox base image.

Container

Linux

x86-64

ARM

ARM 64

386

PowerPC 64 LE

IBM Z

Base Images

centos

Updated 23 minutes ago

The official build of CentOS.

Container

Linux

PowerPC 64 LE

386

ARM 64

ARM

x86-64

Base Images

Operating Systems

alpine

Updated 23 minutes ago

A minimal Docker image based on Alpine Linux with a complete package index and only 5 MB in size!

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Get Started

 **alpine** ☆

Docker Official Images

A minimal Docker image based on Alpine Linux with a complete package index and only 5 MB in size!

10M+

ContainerLinuxARM 64386PowerPC 64 LEIBM Zx86-64ARMFeatured Images

Base ImagesOperating SystemsOfficial Image

Linux - x86-64 (latest)

Copy and paste to pull this image

docker pull alpine

View Available Tags

DESCRIPTIONREVIEWSTAGS

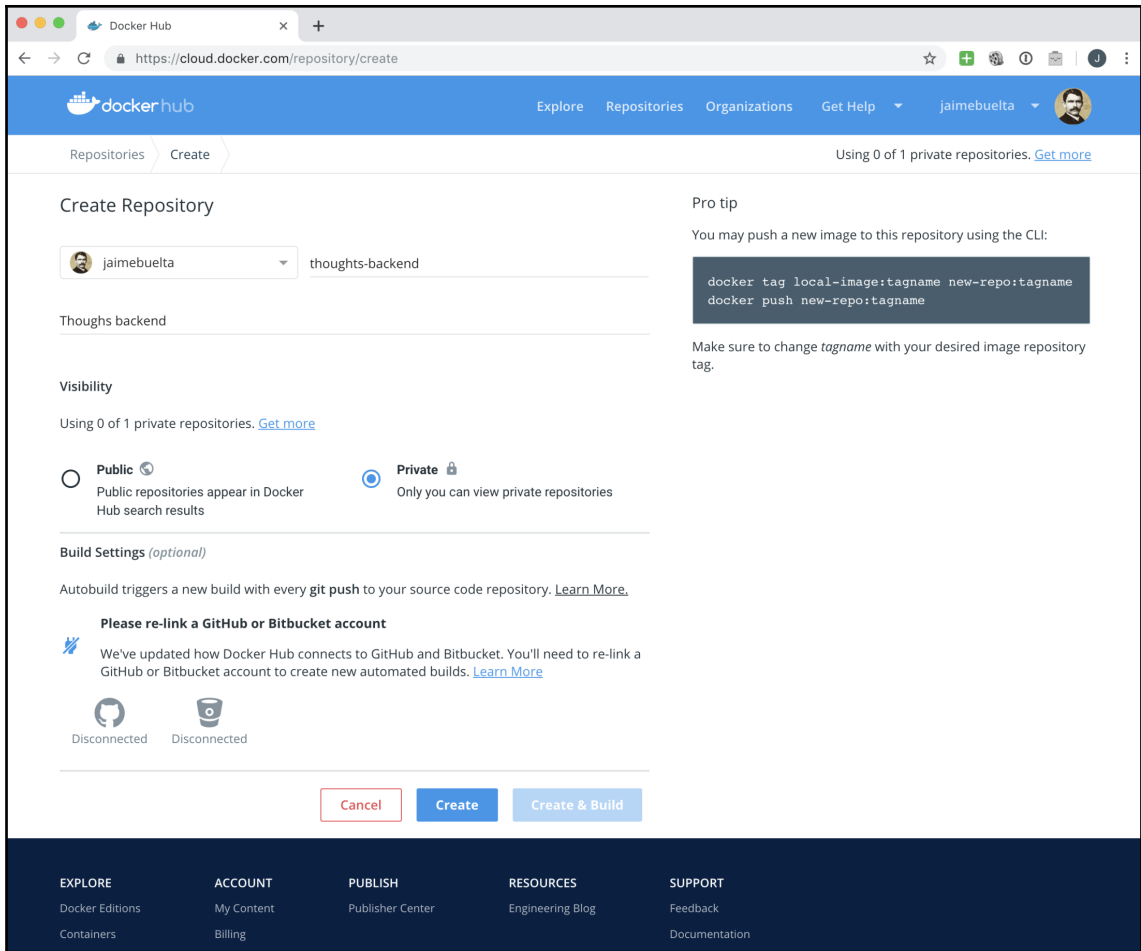
Supported tags and respective Dockerfile links

- 20190508 , edge (x86_64//Dockerfile)
- 3.9.4 , 3.9 , latest (x86_64//Dockerfile)
- 3.8.4 , 3.8 (x86_64//Dockerfile)
- 3.7.3 , 3.7 (x86_64//Dockerfile)
- 3.6.5 , 3.6 (x86_64//Dockerfile)

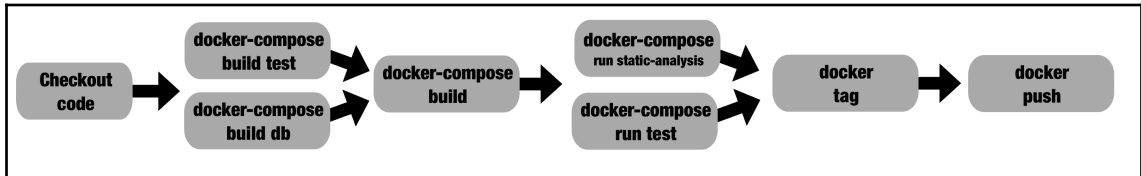
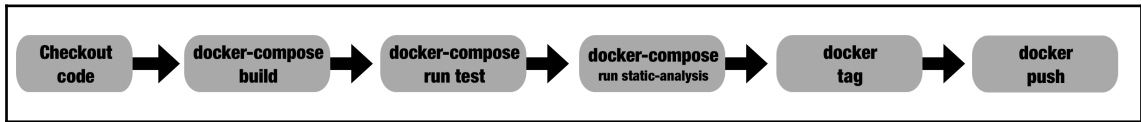
Quick reference

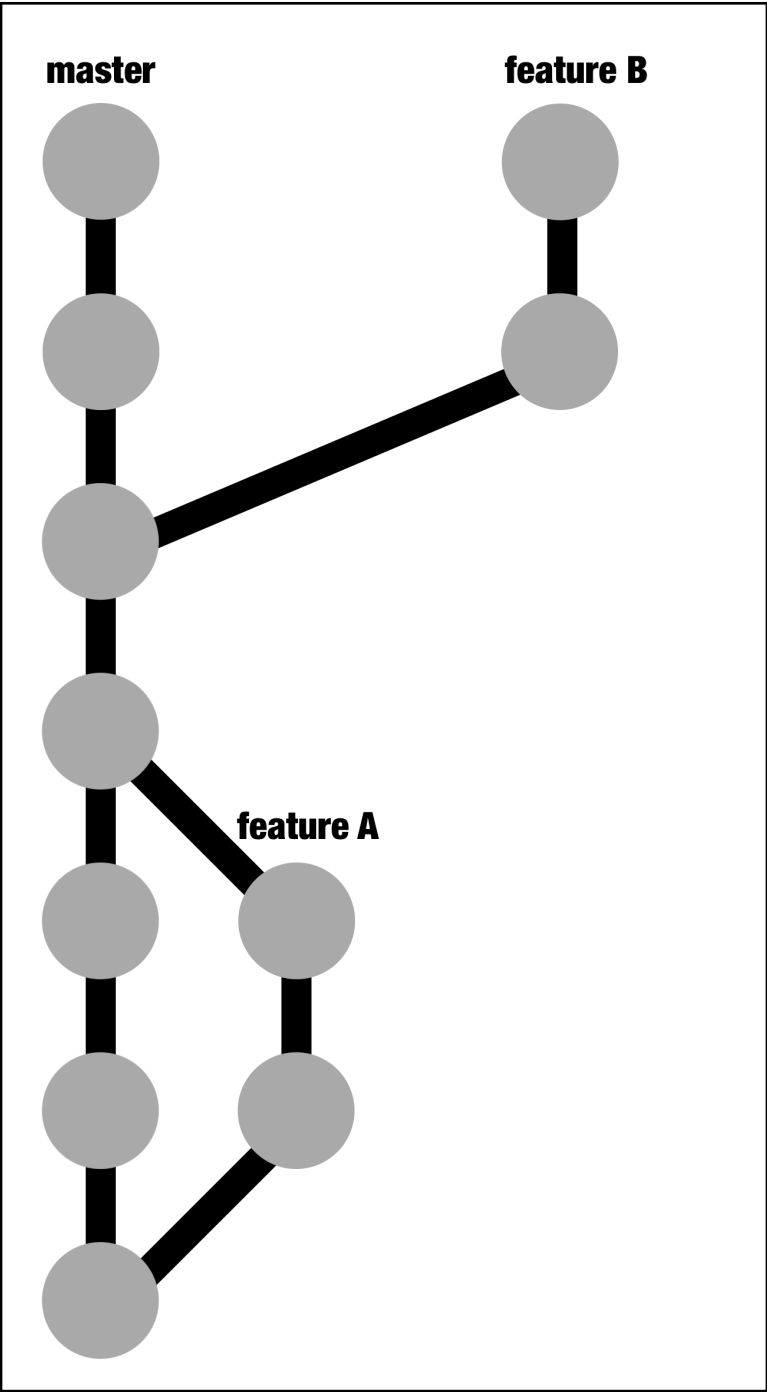
- Where to get help:**
the Docker Community Forums, the Docker Community Slack, or Stack Overflow

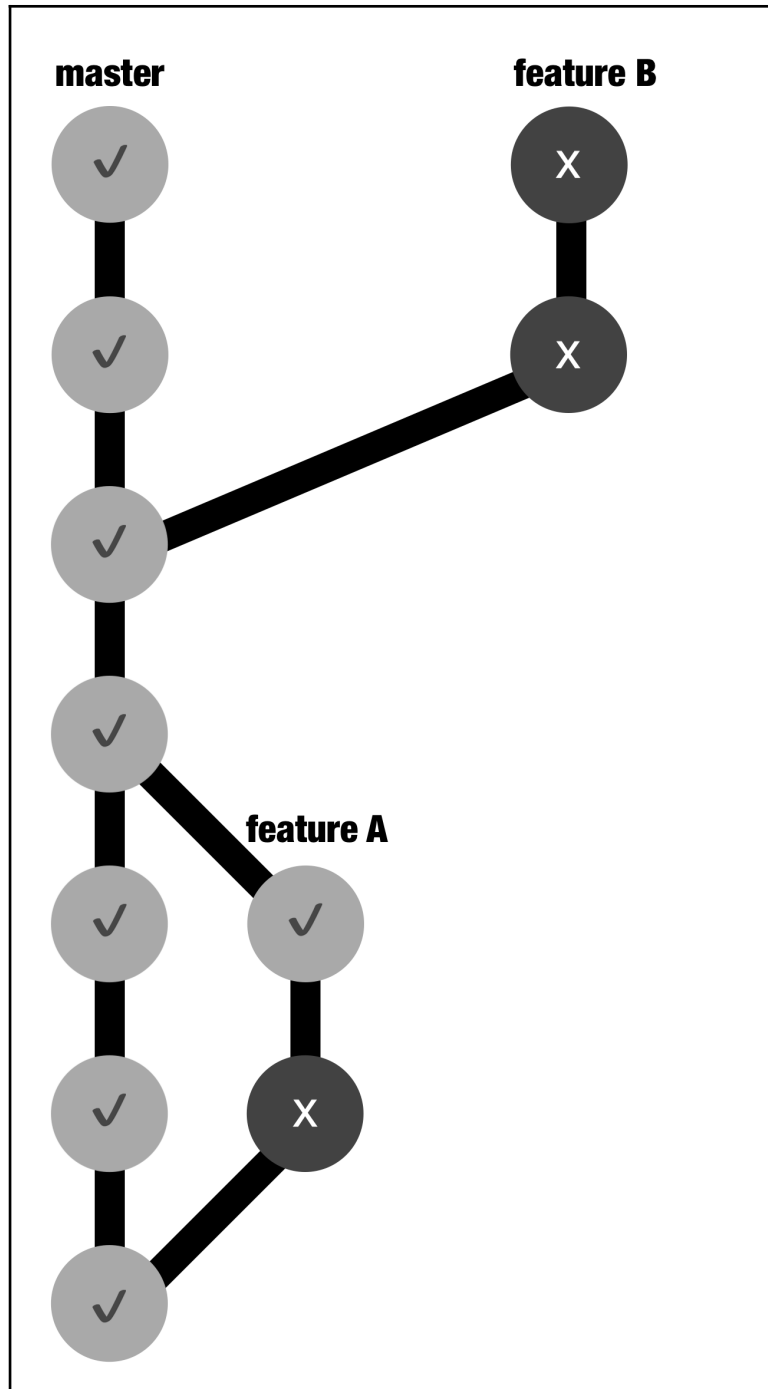
Please log in to write a review of this product.



Chapter 4: Creating a Pipeline and Workflow







Current

Branches

Build History

Pull Requests

> Build #7

Job #7.1

More options

oo master Run in a single stage

-o- Commit 8d864e4

Compare 098b3b3...8d864e4

Branch master

Jaime Buelta

</> Ruby

DOCKER_COMPOSE_VERSION=1.23.2

-o- #7.1 booting

Waiting to start

Cancel job

Job log

View config

1 Job received

2 Queued

3 Booting virtual machine

Current

Branches

Build History

Pull Requests

> Build #7

Job #7.1

More options

✓

m

View commit on GitHub

le stage

Commit 8d864e4

Compare 098b3b3...8d864e4

Branch master

Jaime Buelta

</> Ruby

DOCKER_COMPOSE_VERSION=1.23.2

#7.1 passed

Ran for 3 min 55 sec

37 minutes ago

Restart job

Job log

View config

Remove log

Raw log

1 Worker information

6 Build system information

413

414 docker stop/waiting

416 resolvconf stop/waiting

418 \$ sudo service docker start

420

421 \$ git clone --depth=50 --branch=master https://github.com/jaimebuelta/Hands-On-Docker-for-Microservices-with-Python.git

431

432

433 Setting environment variables from .travis.yml

434 \$ export DOCKER_COMPOSE_VERSION=1.23.2

435

436 \$ rvm use default

worker_info

system_info

docker_mtu

resolvconf

services

0.01s

git_checkout

0.57s

rvm

4.24s

```
1221 Successfully built ba43229fc113
1222 Successfully tagged ch4_test-postgresql:latest
1223 The command "docker-compose build test-postgresql" exited with 0.
1224
1225 $ docker-compose run test-postgresql
1226 Creating network "ch4_default" with the default driver
1227 Creating ch4_db_1 ...
1228 ===== test session starts =====
1229 platform linux -- Python 3.6.8, pytest-4.6.3, py-1.8.0, pluggy-0.12.0 -- /opt/venv/bin/python3
1230 cachedir: .pytest_cache
1231 rootdir: /opt/code, inifile: pytest.ini
1232 plugins: flask-0.14.0
1233 collected 17 items
1234
1235 tests/test_thoughts.py::test_create_me_thought PASSED [ 5%]
1236 tests/test_thoughts.py::test_create_me_unauthorized PASSED [ 11%]
1237 tests/test_thoughts.py::test_list_me_thoughts PASSED [ 17%]
1238 tests/test_thoughts.py::test_list_me_unauthorized PASSED [ 23%]
1239 tests/test_thoughts.py::test_list_thoughts PASSED [ 29%]
1240 tests/test_thoughts.py::test_list_thoughts_search PASSED [ 35%]
1241 tests/test_thoughts.py::test_get_thought PASSED [ 41%]
1242 tests/test_thoughts.py::test_get_non_existing_thought PASSED [ 47%]
1243 tests/test_token_validation.py::test_encode_and_decode PASSED [ 52%]
1244 tests/test_token_validation.py::test_invalid_token_header_invalid_format PASSED [ 58%]
1245 tests/test_token_validation.py::test_invalid_token_header_bad_token PASSED [ 64%]
1246 tests/test_token_validation.py::test_invalid_token_no_header PASSED [ 70%]
1247 tests/test_token_validation.py::test_invalid_token_header_not_expiry_time PASSED [ 76%]
1248 tests/test_token_validation.py::test_invalid_token_header_expired PASSED [ 82%]
1249 tests/test_token_validation.py::test_invalid_token_header_no_username PASSED [ 88%]
1250 tests/test_token_validation.py::test_valid_token_header_invalid_key PASSED [ 94%]
1251 tests/test_token_validation.py::test_valid_token_header PASSED [100%]
1252
1253 ===== 17 passed, 179 warnings in 1.26 seconds =====
1254 The command "docker-compose run test-postgresql" exited with 0.
1255
1256 $ docker-compose run static-analysis
1257 The command "docker-compose run static-analysis" exited with 0.
1258
1259
1260 Done. Your build exited with 0.
1261
```

✓ master Name jobs

Commit 130df6c

Compare e785af3...130df6c

Branch master

 Jaime Buelta

↻ #17 passed

Ran for 4 min 5 sec

Total time 6 min 40 sec

2 minutes ago

Restart build

Build jobs

View config

✓ Tests

4 min 5 sec

✓ # 17.1

 Unit Tests

4 min 5 sec

⌵

✓ # 17.2

 Static Analysis

2 min 35 sec

⌵

Options

Collaborators

Branches

Webhooks

Notifications

Integrations & services

Deploy keys

Moderation

Interaction limits

Branch protection rule

Branch name pattern

master

Applies to 1 branch

master

Rule settings

Protect matching branches

Disables force-pushes to all matching branches and prevents them from being deleted.

☐ Require pull request reviews before merging

When enabled, all commits must be made to a non-protected branch and submitted via a pull request with the required number of approving reviews and no changes requested before it can be merged into a branch that matches this rule.

☒ Require status checks to pass before merging

Choose which [status checks](#) must pass before branches can be merged into a branch that matches this rule. When enabled, commits must first be pushed to another branch, then merged or pushed directly to a branch that matches this rule after status checks have passed.

☒ Require branches to be up to date before merging

This ensures pull requests targeting a matching branch have been tested with the latest code. This setting will not take effect unless at least one status check is enabled (see below).

Status checks found in the last week for this repository

☒ continuous-integration/travis-ci

Required

☐ Require signed commits

Commits pushed to matching branches must have verified signatures.

☐ Include administrators

Enforce all configured restrictions for administrators.

Save changes

Test integration with Travis CI and errors #1

 Open jaimebuelta wants to merge 1 commit into `master` from `testing_integration` 

 Conversation 0

 Commits 1

 Checks 0

 Files changed 1



jaimebuelta commented 19 seconds ago

Owner +  

No description provided.

  Produce a static analysis error

● 5af2a1f

  jaimebuelta changed the title ~~Produce a static analysis error~~ Test integration with Travis CI and errors now

Add more commits by pushing to the `testing_integration` branch on jaimebuelta/Hands-On-Docker-for-Microservices-with-Python.



 Some checks haven't completed yet
2 pending checks

[Hide all checks](#)

●  continuous-integration/travis-ci/pr Pending — The Travis CI build is in prog... **Required** [Details](#)

●  continuous-integration/travis-ci/push Pending — The Travis CI build is in pr... **Required** [Details](#)

 Required statuses must pass before merging
All required [statuses](#) and check runs on this pull request must run successfully to enable automatic merging.

As an administrator, you may still merge this pull request.

Merge pull request



You can also [open this in GitHub Desktop](#) or view [command line instructions](#).

Conversation 0

Commits 1

Checks 0

Files changed 1



jaimebuelta commented 5 minutes ago

Owner + 👤 ...

No description provided.

🔑  Produce a static analysis error ✖ 5af2a1f

🔧  ~~Produce a static analysis error~~ changed the title to **Test integration with Travis CI and errors** 5 minutes ago

Add more commits by pushing to the **testing_integration** branch on **jaimebuelta/Hands-On-Docker-for-Microservices-with-Python**.



✖ **All checks have failed** Hide all checks

2 failing checks

✖  **continuous-integration/travis-ci/pr** — The Travis CI build failed Required Details

✖  **continuous-integration/travis-ci/push** — The Travis CI build failed Required Details

○ **Required statuses must pass before merging**

All required [statuses](#) and check runs on this pull request must run successfully to enable automatic merging.

As an administrator, you may still merge this pull request.

Merge pull request ▼

You can also [open this in GitHub Desktop](#) or view [command line instructions](#).

[28]

Current

Branches

Build History

Pull Requests

Build #19

More options

✖ Pull Request #1

Produce a static analysis error

Commit 2a40457

#1: Produce a static analysis error

Branch master

Jaime Buelta

#19 failed

Ran for 3 min 55 sec

Total time 6 min 29 sec

about a minute ago

Restart build

Build jobs

View config

⊗ Tests

3 min 55 sec

✓ # 19.1

Unit Tests

3 min 55 sec

⌂

✖ # 19.2

Static Analysis

2 min 34 sec

⌂

Test integration with Travis CI and errors #1

 **Open** jaimebuelta wants to merge 2 commits into `master` from `testing_integration` 

 Conversation 0

 Commits 2

 Checks 0

 Files changed 1



jaimebuelta commented 15 minutes ago

Owner

+  ...

No description provided.

  Produce a static analysis error

 5af2a1f

  jaimebuelta changed the title ~~Produce a static analysis error~~ **Test integration with Travis CI and errors** 15 minutes ago

  Fix static analysis problem

 6cd6ce7

Add more commits by pushing to the `testing_integration` branch on `jaimebuelta/Hands-On-Docker-for-Microservices-with-Python`.



All checks have passed

2 successful checks

[Show all checks](#)



This branch has no conflicts with the base branch

Merging can be performed automatically.

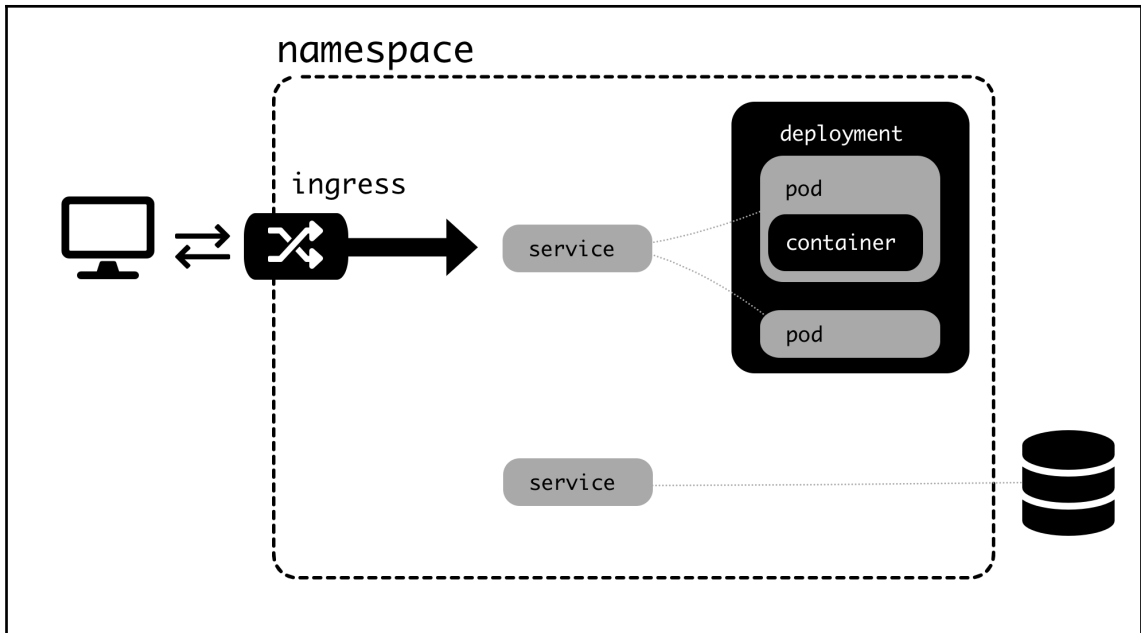
Merge pull request



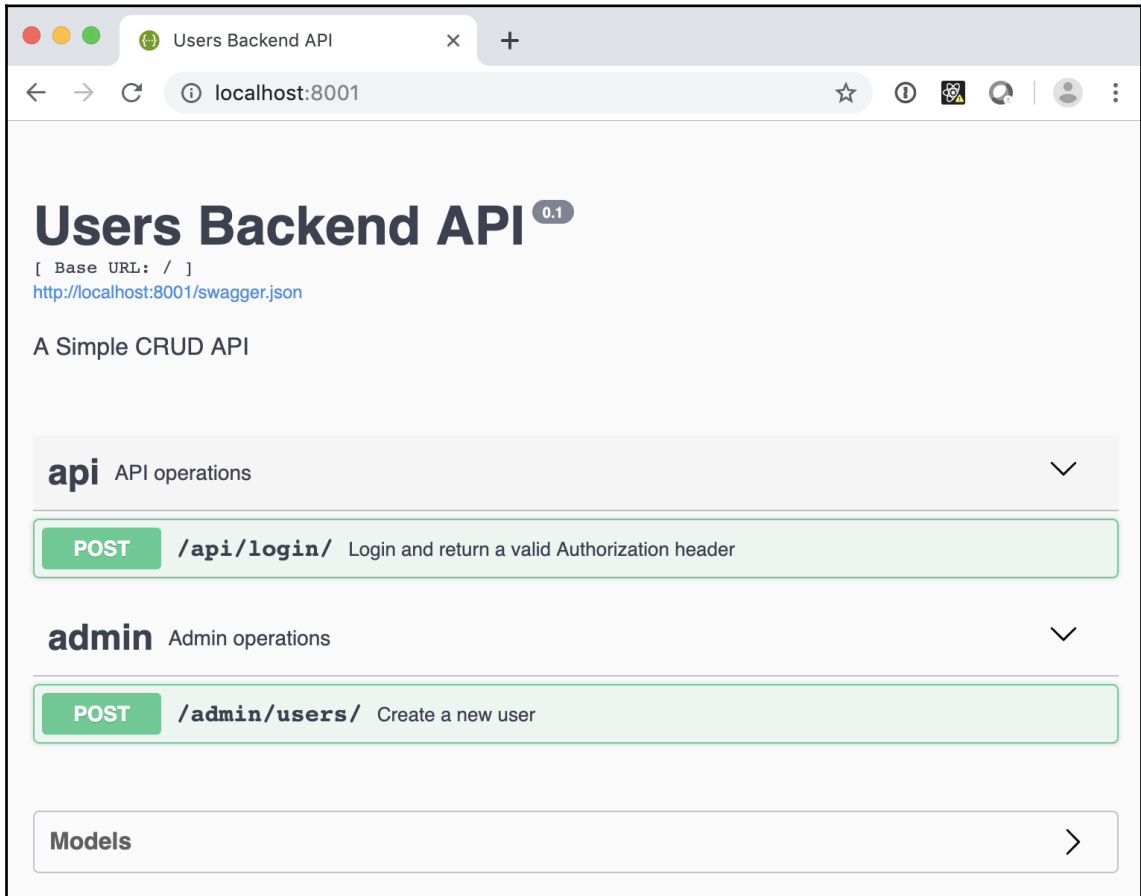
You can also [open this in GitHub Desktop](#) or view [command line instructions](#).

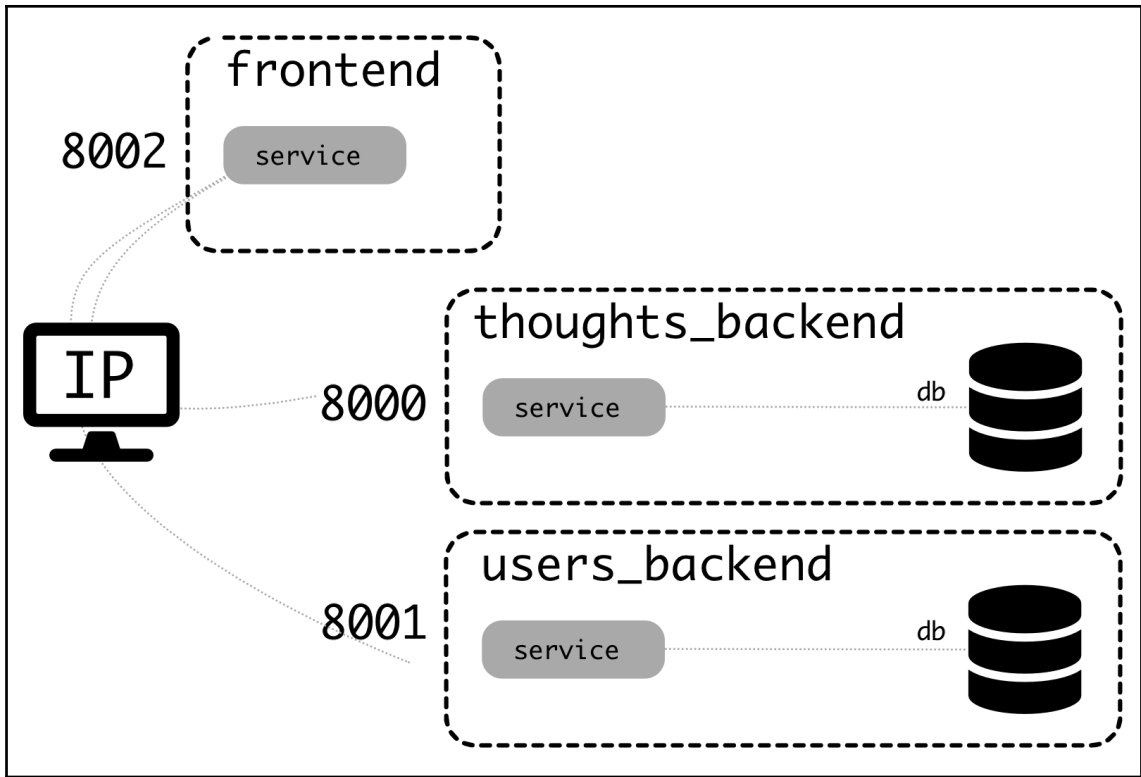
Chapter 5: Using Kubernetes to Coordinate Microservices

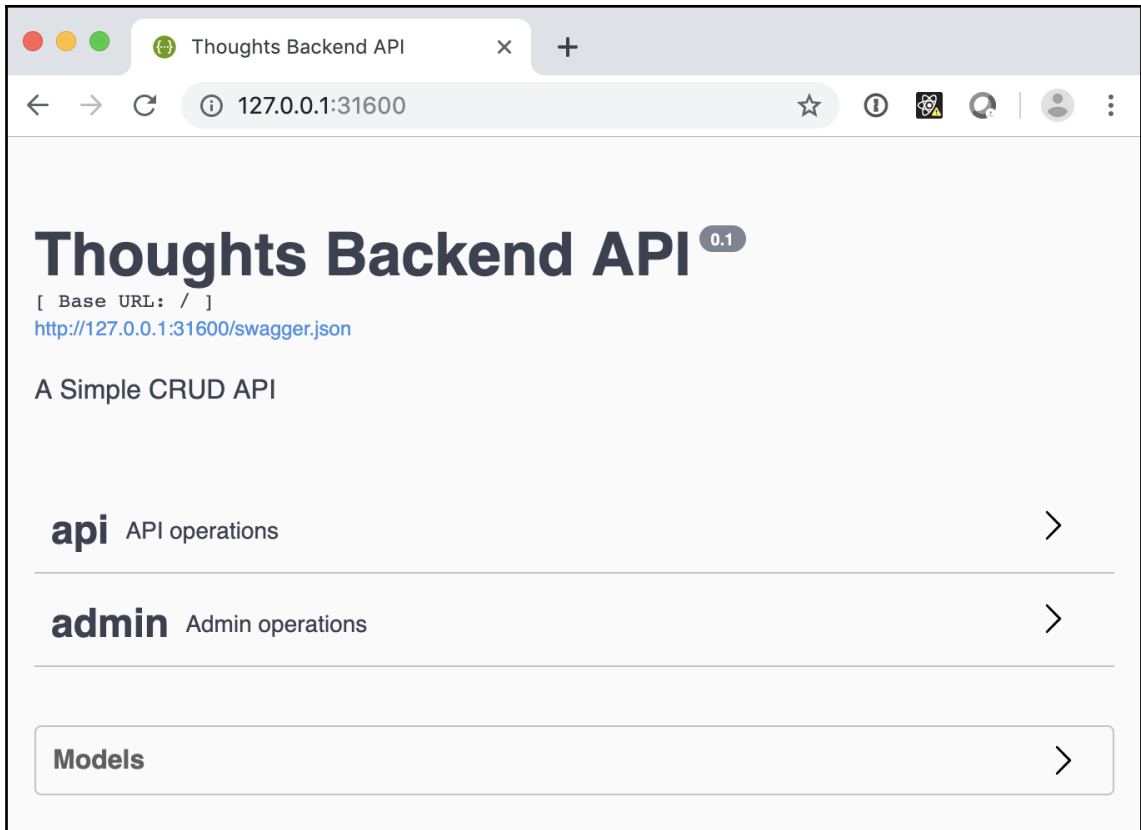


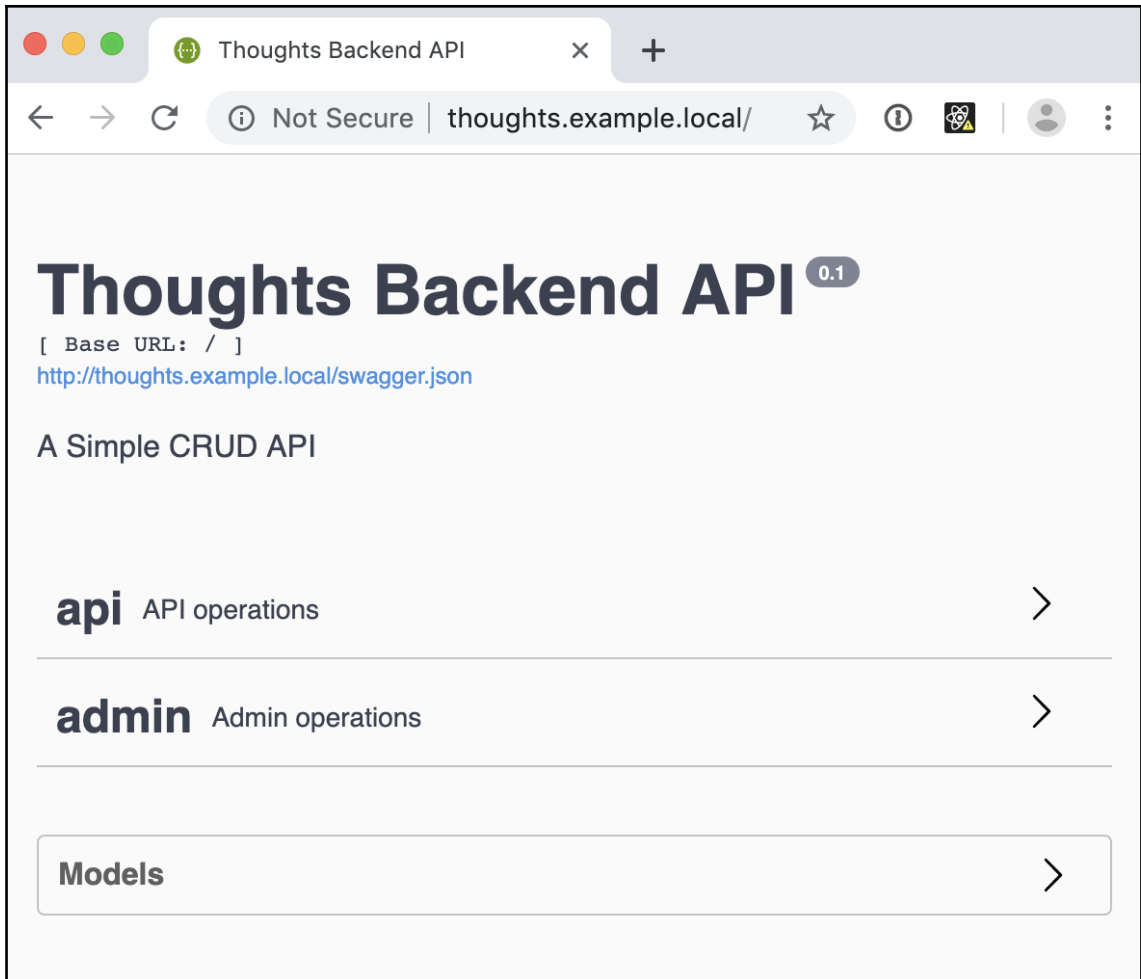


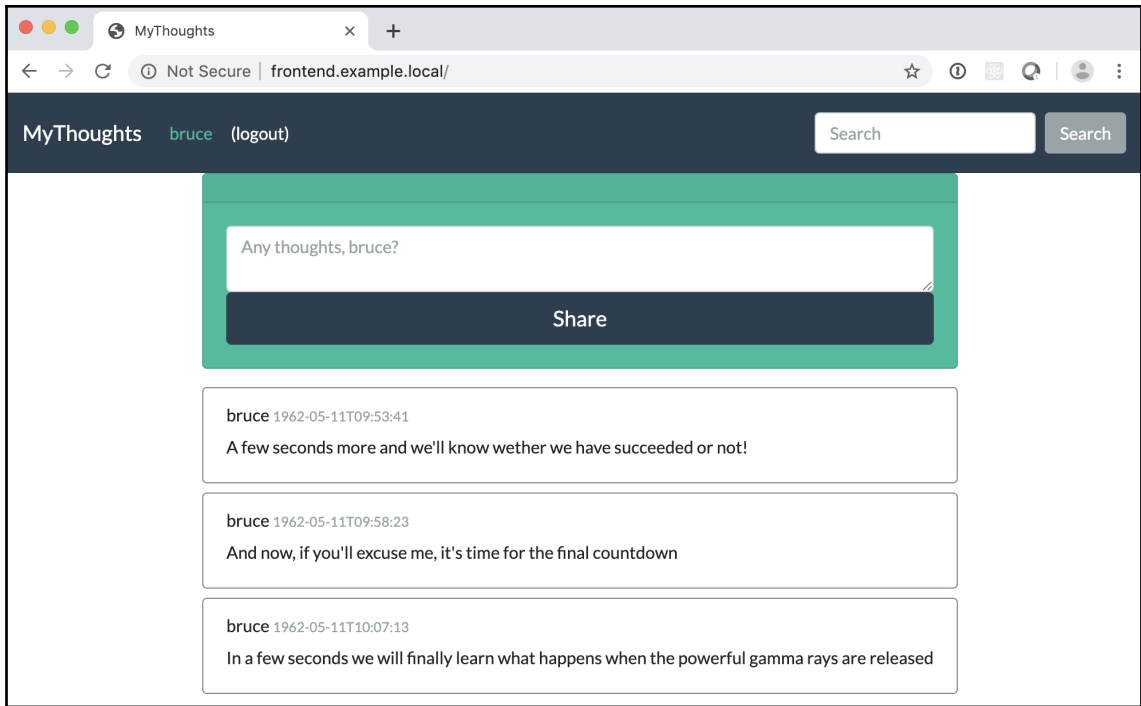
Chapter 6: Local Development with Kubernetes











Chapter 7: Configuring and Securing the Production System

The screenshot shows the AWS IAM Management Console interface for adding a new user. The browser address bar displays the URL: `https://console.aws.amazon.com/iam/home#/users$new?step=details&accessKey&userNames=jaime`. The console header includes the AWS logo, navigation tabs for 'Services' and 'Resource Groups', and user account information for 'jaimebuelta'.

The main content area is titled 'Add user' and features a progress indicator with five steps. Step 1, 'Set user details', is currently active. Below this title, a message states: 'You can add multiple users at once with the same access type and permissions. [Learn more](#)'. A text input field for 'User name*' contains the value 'jaime'. A blue link '+ Add another user' is positioned below the input field.

The next section is 'Select AWS access type', with a message: 'Select how these users will access AWS. Access keys and autogenerated passwords are provided in the last step. [Learn more](#)'. Under 'Access type*', two options are listed: 'Programmatic access' (checked) and 'AWS Management Console access' (checked). Descriptions for each option are provided. Under 'Console password*', the 'Autogenerated password' option is selected. A text input field for a custom password is visible but empty.

At the bottom of the form, a '* Required' label is on the left. On the right, there are 'Cancel' and 'Next: Permissions' buttons. The footer contains a 'Feedback' link, 'English (US)' language selection, and copyright information: '© 2008 - 2019, Amazon Web Services, Inc. or its affiliates. All rights reserved.' along with links to 'Privacy Policy' and 'Terms of Use'.

Amazon ECR

https://us-west-2.console.aws.amazon.com/ecr/get-started?region=us-west-2

ServicesResource GroupsjaimebueltaSelect a RegionSupport

Compute

Amazon Elastic Container Registry

Easily store, manage, and deploy container images

Amazon Elastic Container Registry (ECR) is a fully-managed container registry that makes it easy for developers to store, manage, and deploy container images.

Create a repository

Get Started

How it works

Write code
Write and package code as a Docker image

Amazon ECR

Compress, encrypt, and control access to images

Version, tag, and manage image lifecycles

Run containers
Pull images and run containers anywhere

Amazon ECS
Amazon EKS
AWS Cloud
On-premises

Pricing (US)

You pay only for the amount of data you store in your repositories and data transferred to the Internet.

[Learn more](#)

Getting started

[What is Amazon ECR?](#)

[Getting started with ECR](#)

[Set up a CI/CD pipeline with ECR](#)

FeedbackEnglish (US)

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Amazon ECR

https://us-west-2.console.aws.amazon.com/ecr/repositories?region=us-west-2

ServicesResource GroupsjaimebueltaSelect a RegionSupport

Amazon Container Services

Amazon ECS
Clusters
Task definitions

Amazon EKS
Clusters

Amazon ECR
Repositories

Successfully created repository

View push commands

ECR > Repositories

Repositories (1)

Find Repositories

< 1 >

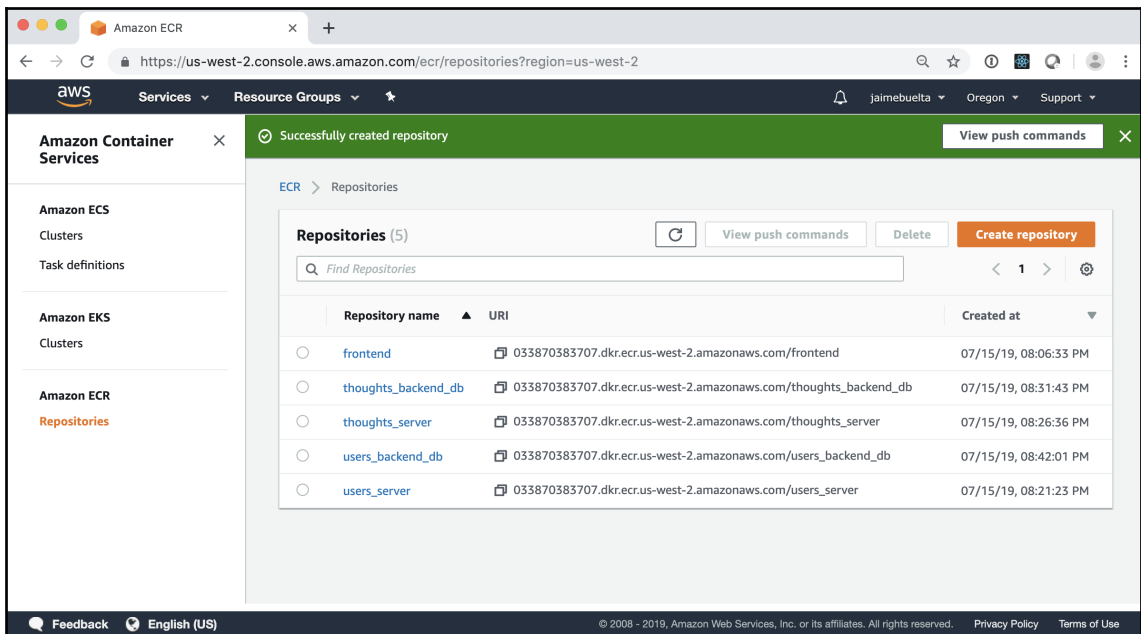
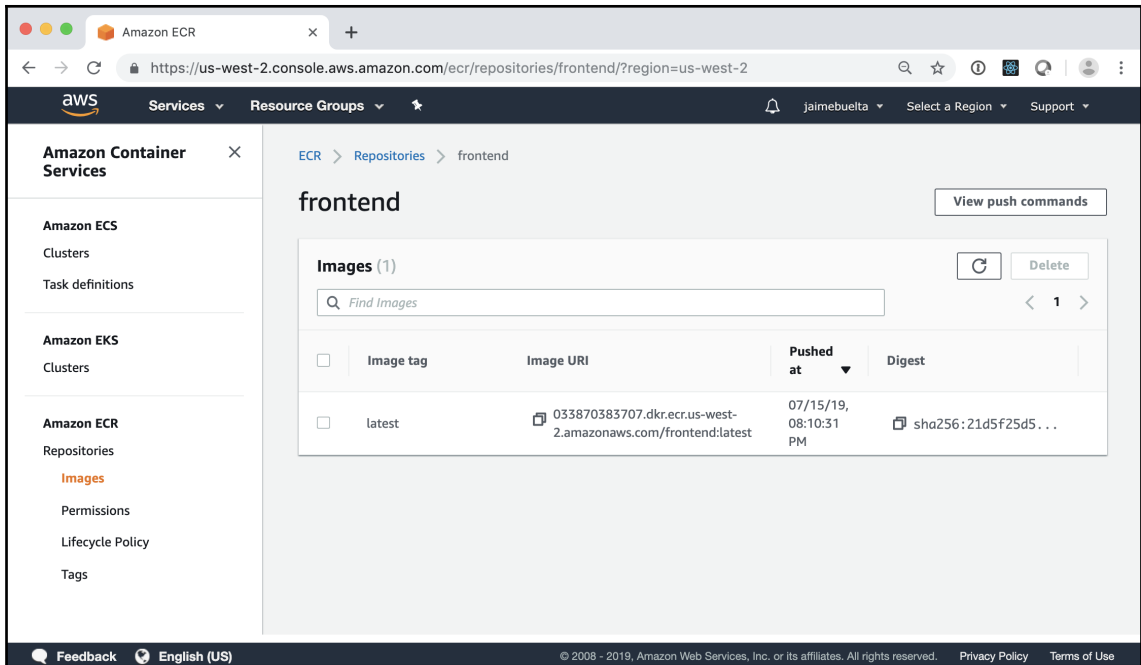
Repository name	URI	Created at
frontend	033870383707.dkr.ecr.us-west-2.amazonaws.com/frontend	07/15/19, 08:06:33 PM

View push commandsDeleteCreate repository

FeedbackEnglish (US)

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[39]



MyThoughts

← → ↻ ⓘ Not Secure | a28320efca9e011e9969b0ae3722320e-357987887.us-west-2.elb.amazonaws.com/login/ ☆ ⓘ ⌵ 🔍 | 👤 ⋮

MyThoughts

Please enter your login and password to access the system.

Login

Username

Password

Load Balancers | EC2 Manager

← → ↺ https://us-west-2.console.aws.amazon.com/ec2/v2/home?region=us-west-2#LoadBalancers:sort=loadBalancer...

aws

Services

Resource Groups

jaimebuelta

Oregon

Support

EC2 Dashboard

Events

Tags

Reports

Limits

INSTANCES

Instances

Launch Templates

Spot Requests

Reserved Instances

Dedicated Hosts

Scheduled Instances

Capacity Reservations

IMAGES

AMIs

Bundle Tasks

ELASTIC BLOCK STORE

Volumes

Snapshots

Lifecycle Manager

NETWORK & SECURITY

Security Groups

Elastic IPs

Placement Groups

Key Pairs

Network Interfaces

LOAD BALANCING

Create Load Balancer

Actions

Filter by tags and attributes or search by keyword

1 to 1 of 1

Name	DNS name	State	VPC ID	Availability Zones	Type
a28320efca9e011e9969b0a...	a28320efca9e011e996...		vpc-04a36f34b311c616f	us-west-2b, us-west-2c...	classic

Load balancer: a28320efca9e011e9969b0ae3722320e

DescriptionInstancesHealth checkListenersMonitoringTagsMigration

The following listeners are currently configured for this load balancer:

Load Balancer Protocol	Load Balancer Port	Instance Protocol	Instance Port	Cipher	SSL Certificate
TCP	80	TCP	31491	N/A	N/A

Edit

Feedback

English (US)

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Edit listeners

X

The following listeners are currently configured for this load balancer:

Load Balancer Protocol	Load Balancer Port	Instance Protocol	Instance Port	Cipher	SSL Certificate	
TCP	80	TCP	31491	N/A	N/A	X
HTTPS (Secure HTTP)	443	HTTP	80	Change	Change	X

Add

Cancel Save

[42]

Select Certificate

AWS Certificate Manager (ACM) is the preferred tool to provision and store server certificates. If you previously stored a server certificate using IAM, you can deploy it to your load balancer. [Learn more](#) about HTTPS/SSL listeners and certificate management.

Certificate type:

☒ Choose a certificate from ACM (recommended)

☐ Choose a certificate from IAM

☐ Upload a certificate to IAM

Request a new certificate from ACM

AWS Certificate Manager makes it easy to provision, manage, deploy, and renew SSL Certificates on the AWS platform. ACM manages certificate renewals for you. [Learn more](#)

Certificate:

Cancel

Save

Statistics Report for HAProxy

localhost:8001

HAProxy version 2.0.2, released 2019/07/16

Statistics Report for pid 6

> General process information

pid = 6 (process #1, nproc = 1, nbthread = 2)

uptime = 0s 0h05m11s

system limits: memmax = unlimited; ulimit-n = 1048575

maxsock = 1048575; maxconn = 524272; maxpipes = 0

current conns = 3; current pipes = 0/0; conn rate = 3/sec; bit rate = 0.000 kbps

Running tasks: 1/21; idle = 100 %

active UP

active UP, going down

active DOWN, going up

active or backup DOWN

active or backup DOWN for maintenance (MAINT)

active or backup SOFT STOPPED for maintenance

backup UP

backup UP, going down

backup DOWN, going up

not checked

Display option:

Scope :

[Hide DOWN servers](#)

[Refresh now](#)

[CSV export](#)

External resources:

[Priority site](#)

[Updates \(v2.0\)](#)

[Online manual](#)

Note: "NOLB"/"DRAIN" = UP with load-balancing disabled.

haproxy node

	Queue			Session rate			Sessions				Bytes		Denied		Errors		Warnings		Server												
	Cur	Max	Limit	Cur	Max	Limit	Cur	Max	Limit	Total	LbTot	Last	In	Out	Req	Resp	Req	Conn	Resp	Retr	Redis	Status	LastChk	Wght	Act	Bck	Chk	Dwn	Dwntme	Thrtle	
Frontend				1	2	-	1	2		524 272	5		10 188	9 088	0	0	3					OPEN									

backend nodes

	Queue			Session rate			Sessions				Bytes		Denied		Errors		Warnings		Server											
	Cur	Max	Limit	Cur	Max	Limit	Cur	Max	Limit	Total	LbTot	Last	In	Out	Req	Resp	Req	Conn	Resp	Retr	Redis	Status	LastChk	Wght	Act	Bck	Chk	Dwn	Dwntme	Thrtle
aws	0	0	-	0	1		0	1		-	5	5	2m56s	5 113	6 045	0	0	0	0	0	0	5m11s UP	L4OK in 350ms	1	Y	-	0	0	0s	-
example	0	0	-	0	1		0	1		-	5	5	2m53s	5 075	2 410	0	0	0	0	0	0	5m11s UP	L4OK in 167ms	1	Y	-	0	0	0s	-
Backend	0	0		0	1		0	1		52 428	10	10	2m53s	10 188	8 455	0	0	0	0	0	0	5m11s UP		2	2	0		0	0s	-

Choose the action to perform on the checked servers :

Apply

stats

	Queue			Session rate			Sessions				Bytes		Denied		Errors		Warnings		Server												
	Cur	Max	Limit	Cur	Max	Limit	Cur	Max	Limit	Total	LbTot	Last	In	Out	Req	Resp	Req	Conn	Resp	Retr	Redis	Status	LastChk	Wght	Act	Bck	Chk	Dwn	Dwntme	Thrtle	
Frontend	2	2	-	2	2	-	2	2		524 272	2		0	0	0	0	0					OPEN									
Backend	0	0		0	0		0	0		52 428	0	0s	0	0	0	0	0	0	0	0	0	5m11s UP		0	0	0		0			

[43]

Statistics Report for HAProxy

localhost:8001/st=DONE

HAProxy version 2.0.2, released 2019/07/16

Statistics Report for pid 6

> General process information

pid = 6 (process #1, nbproc = 1, nthread = 2)
uptime = 0d 0h 18m 04s
system limits: memmax = unlimited; ulimit-n = 1048575
maxsock = 1048575; maxconn = 524272; maxpipes = 0
current conns = 3; current pipes = 0/0; conn rate = 0/sec; bit rate = 1.087 kbps
Running tasks: 1/21; idle = 100 %

active UP

active UP, going down

active DOWN, going up

active or backup DOWN

active or backup DOWN for maintenance (MAINT)

active or backup SOFT STOPPED for maintenance

backup UP

backup UP, going down

backup DOWN, going up

not checked

active or backup STOPPED for maintenance

Note: "NOLB"YDRAIN" = UP with load-balancing disabled.

Display option:

Scope:

Hide DOWN servers

Refresh now

CSV export

External resources:

Primary site

Updates v2.0

Online manual

[X] Action processed successfully.

haproxy node

	Queue			Session rate			Sessions						Bytes		Denied		Errors		Warnings		Server										
	Cur	Max	Limit	Cur	Max	Limit	Cur	Max	Limit	Total	LbTot	Last	In	Out	Req	Resp	Req	Conn	Resp	Retr	Redis	Status	LastChk	Wght	Act	Bck	Chk	Dwn	Dwntime	Thrtle	
Frontend	0	2	-	1	2		524	272		6			10	188	9	299	0	0	4				OPEN								

backends

	Queue			Session rate			Sessions						Bytes		Denied		Errors		Warnings		Server										
	Cur	Max	Limit	Cur	Max	Limit	Cur	Max	Limit	Total	LbTot	Last	In	Out	Req	Resp	Req	Conn	Resp	Retr	Redis	Status	LastChk	Wght	Act	Bck	Chk	Dwn	Dwntime	Thrtle	
aws	0	0	-	0	1		0	1		-	5	5	15m49s	5	113	6	045	0	0	0	0	0	18m4s UP	*L4OK in 433ms	1	Y	-	0	0	0s	-
example	0	0	-	0	1		0	1		-	5	5	15m46s	5	075	2	410	0	0	0	0	0	0s MAINT		1	Y	-	0	1	0s	-
Backend	0	0		0	1		0	1		52	428	10	10	15m46s	10	188	8	455	0	0	0	0	18m4s UP		1	1	0	0	0	0s	

Choose the action to perform on the checked servers :

Apply

stats

	Queue			Session rate			Sessions						Bytes		Denied		Errors		Warnings		Server										
	Cur	Max	Limit	Cur	Max	Limit	Cur	Max	Limit	Total	LbTot	Last	In	Out	Req	Resp	Req	Conn	Resp	Retr	Redis	Status	LastChk	Wght	Act	Bck	Chk	Dwn	Dwntime	Thrtle	
Frontend	0	2	-	2	2		524	272		4			6	305	87	379	0	0	1				OPEN								
Backend	0	0		0	0		0	0		52	428	0	0	0s	6	305	87	379	0	0	0	0	18m4s UP		0	0	0	0	0	0s	

EC2 Management Console

us-west-2.console.aws.amazon.com/ec2/autoscaling/home?region=us-west-2#AutoScalingGroups:id=ekscctl-Example-nodegroup-ng-74a0ead4-NodeGroup-15B40E3XCVMHW;view=details

aws

ServicesResource Groups

jaimebuelitaOregonSupport

ReportsLimits

INSTANCES

INSTANCES

Launch Templates

Spot Requests

Reserved Instances

Dedicated Hosts

Scheduled Instances

Capacity Reservations

IMAGES

AMIs

Bundle Tasks

ELASTIC BLOCK STORE

Volumes

Snapshots

Lifecycle Manager

NETWORK & SECURITY

Security Groups

Elastic IPs

Placement Groups

Key Pairs

Network Interfaces

LOAD BALANCING

Load Balancers

Target Groups

AUTO SCALING

Launch Configurations

Auto Scaling Groups

Create Auto Scaling groupActions

Filter: Filter Auto Scaling groups...

1 to 1 of 1 Auto Scaling Groups

Name	Launch Configuration	Instances	Desired	Min	Max	Availability Zones	Default Cooldown	Health Check Grace
ekscctl-Example-nodegroup-ng-74a0ead4-N...	ekscctl-Example-nodegr...	2	2	2	2	us-west-2a, us-west-2b, us-...	300	0

Auto Scaling Group: ekspctl-Example-nodegroup-ng-74a0ead4-NodeGroup-15B40E3XCVMHW

Details

Activity History

Scaling Policies

Instances

Monitoring

Notifications

Tags

Scheduled Actions

Lifecycle Hooks

Launch Template

ekscctl-Example-nodegroup-ng-74a0ead4

Availability Zone(s)

us-west-2a, us-west-2b, us-west-2c

Launch Template Version

1

Subnet(s)

subnet-0f280fd2c37391773, subnet-07f3be7435b708a5d, subnet-018dfbdf102ac7e31

Launch Template Description

-

Instance Types

-

Classic Load Balancers

Target Groups

Spot Allocation Strategy

Target Groups

Optional On-Demand Base

EC2

Health Check Type

EC2

On-Demand Percentage

0%

Health Check Grace Period

0

Desired Capacity

2

Instance Protection

Default

Min

2

Termination Policies

Default

Max

2

Suspended Processes

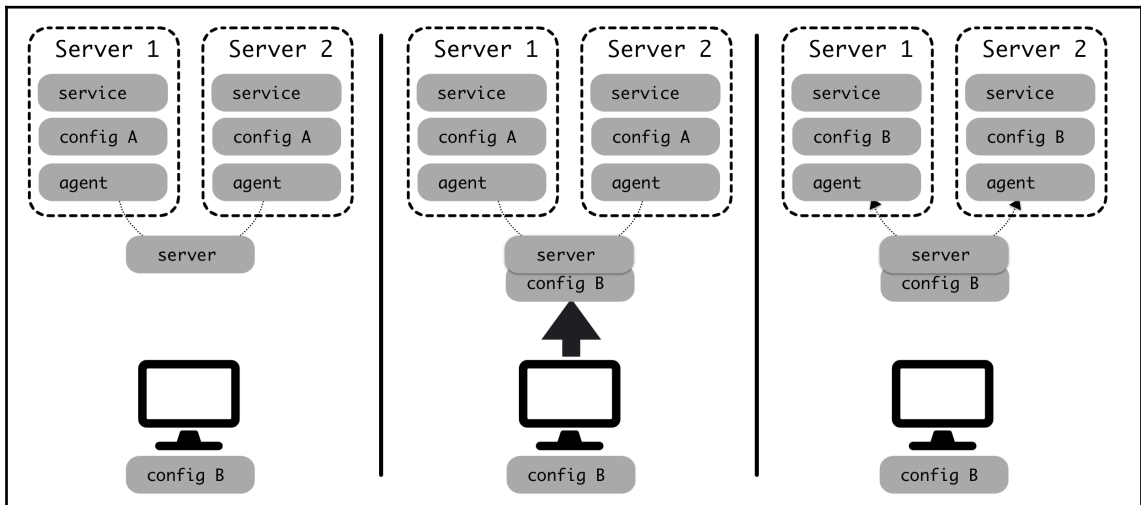
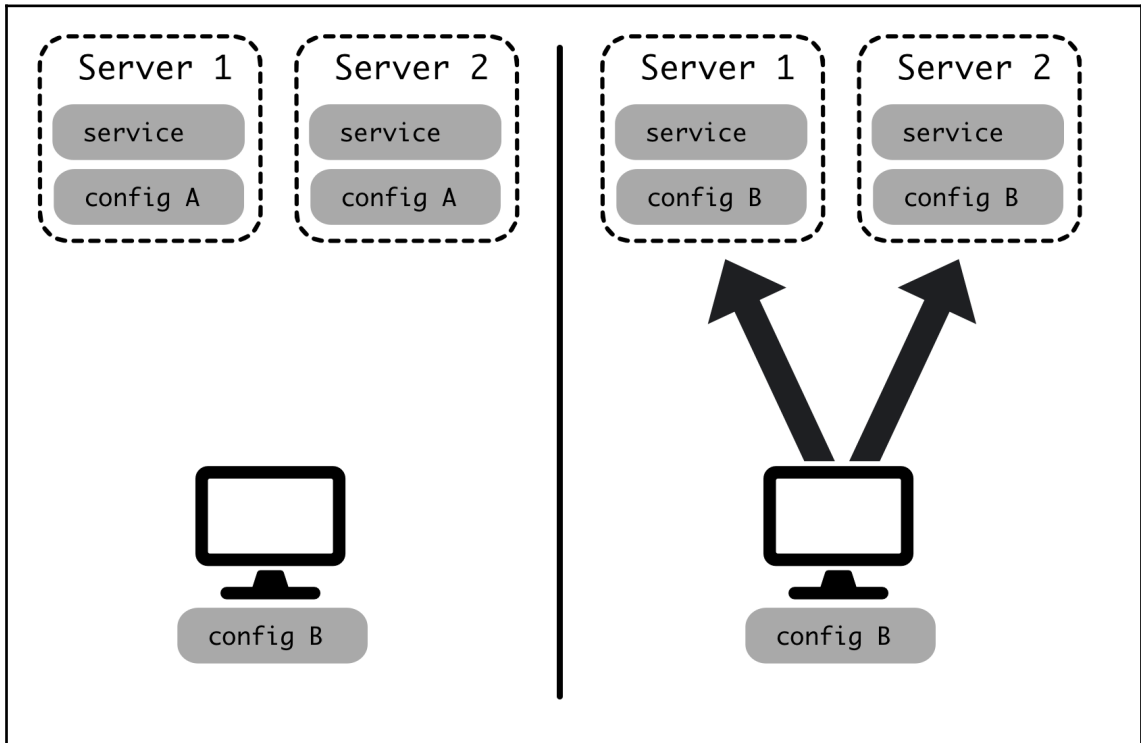
Placement Groups

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Chapter 8: Using GitOps Principles



<> Code

🕒 Issues 0

🔄 Pull requests 0

📖 Wiki

🛡 Security

📊 Insights

⚙ Settings

Options

Collaborators & teams

Branches

Webhooks

Notifications

Integrations & services

Deploy keys

Security alerts

Moderation

Interaction limits

Deploy keys / Add new

Title

flux

Key

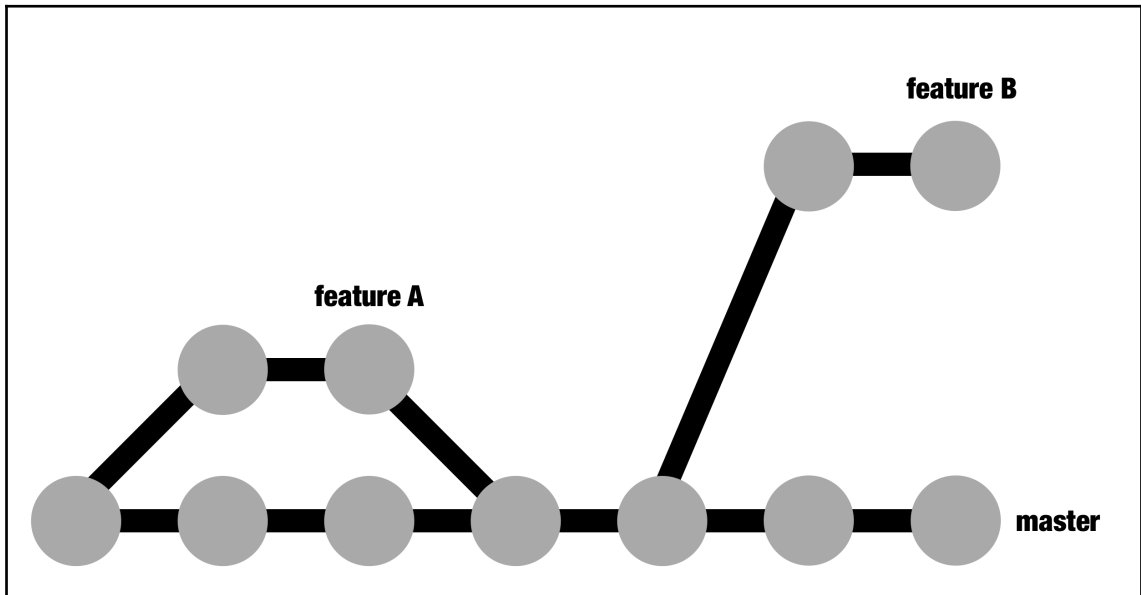
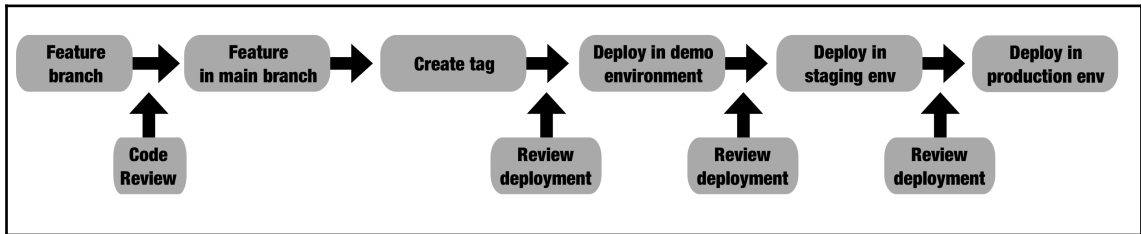
ssh-rsa <SECRET>

☒ Allow write access

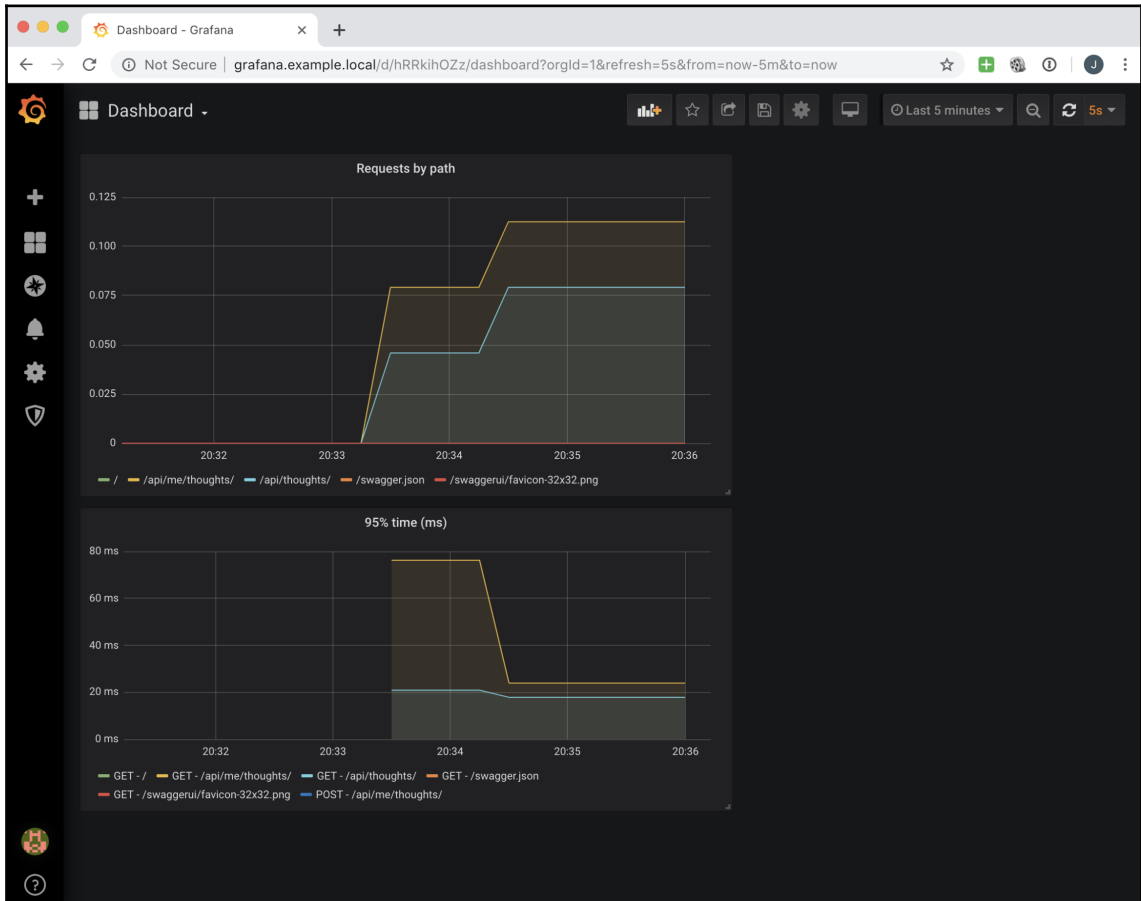
Can this key be used to push to this repository? Deploy keys always have pull access.

Add key

Chapter 9: Managing Workflows

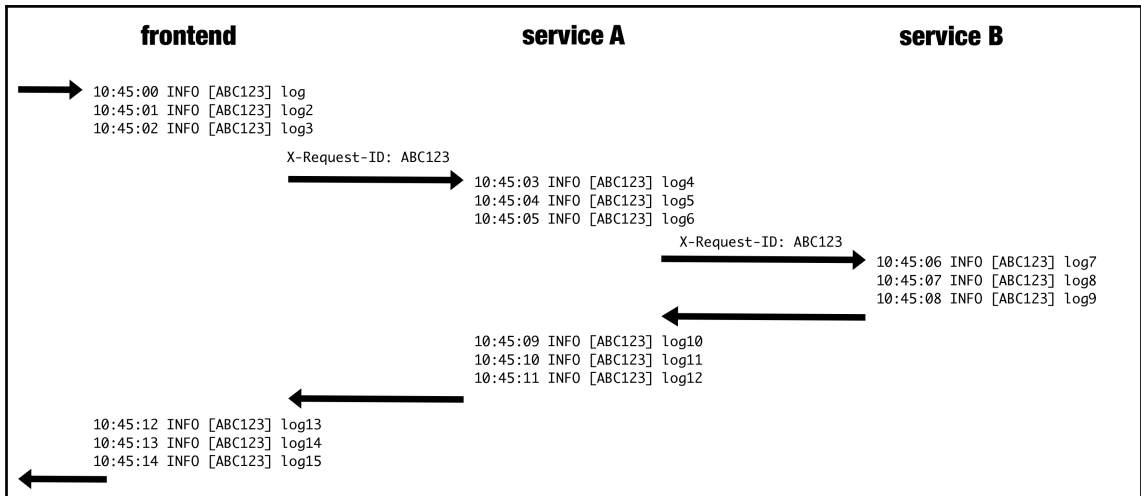


Chapter 10: Monitoring Logs and Metrics



```
tail -f /var/log/syslog

Aug 11 17:29:51 10-1-0-27.frontend-service.example.svc.cluster.local frontend: [pid: 7|app: 0|req: 467/469] 127.0.0.1 () {28 vars in 307 bytes} [Sun Aug 11 17:29:51 2019] GET / => generated 0 bytes in 13 msecs (HTTP/1.1 302) 4 headers in 129 bytes (1 switches on core 0)
Aug 11 17:30:02 10-1-0-27.frontend-service.example.svc.cluster.local frontend: [pid: 7|app: 0|req: 468/470] 127.0.0.1 () {28 vars in 306 bytes} [Sun Aug 11 17:30:02 2019] GET / => generated 0 bytes in 1 msecs (HTTP/1.1 302) 4 headers in 129 bytes (1 switches on core 0)
Aug 11 17:30:04 10-1-0-26.frontend-service.example.svc.cluster.local frontend: [pid: 7|app: 0|req: 472/472] 127.0.0.1 () {28 vars in 306 bytes} [Sun Aug 11 17:30:04 2019] GET / => generated 0 bytes in 1 msecs (HTTP/1.1 302) 4 headers in 129 bytes (1 switches on core 0)
Aug 11 17:30:07 10-1-0-26.frontend-service.example.svc.cluster.local frontend: [pid: 7|app: 0|req: 473/473] 127.0.0.1 () {28 vars in 307 bytes} [Sun Aug 11 17:30:07 2019] GET / => generated 0 bytes in 2 msecs (HTTP/1.1 302) 4 headers in 129 bytes (1 switches on core 0)
Aug 11 17:30:20 10-1-0-27.frontend-service.example.svc.cluster.local frontend: [pid: 7|app: 0|req: 469/471] 127.0.0.1 () {28 vars in 307 bytes} [Sun Aug 11 17:30:20 2019] GET / => generated 0 bytes in 1 msecs (HTTP/1.1 302) 4 headers in 129 bytes (1 switches on core 0)
Aug 11 17:30:32 10-1-0-27.frontend-service.example.svc.cluster.local frontend: [pid: 7|app: 0|req: 470/472] 127.0.0.1 () {28 vars in 307 bytes} [Sun Aug 11 17:30:32 2019] GET / => generated 0 bytes in 2 msecs (HTTP/1.1 302) 4 headers in 129 bytes (1 switches on core 0)
Aug 11 17:30:34 10-1-0-26.frontend-service.example.svc.cluster.local frontend: [pid: 7|app: 0|req: 474/474] 127.0.0.1 () {28 vars in 307 bytes} [Sun Aug 11 17:30:34 2019] GET / => generated 0 bytes in 1 msecs (HTTP/1.1 302) 4 headers in 129 bytes (1 switches on core 0)
Aug 11 17:30:37 10-1-0-26.frontend-service.example.svc.cluster.local frontend: [pid: 7|app: 0|req: 475/475] 127.0.0.1 () {28 vars in 307 bytes} [Sun Aug 11 17:30:37 2019] GET / => generated 0 bytes in 1 msecs (HTTP/1.1 302) 4 headers in 129 bytes (1 switches on core 0)
Aug 11 17:30:50 10-1-0-27.frontend-service.example.svc.cluster.local frontend: [pid: 7|app: 0|req: 471/473] 127.0.0.1 () {28 vars in 307 bytes} [Sun Aug 11 17:30:50 2019] GET / => generated 0 bytes in 2 msecs (HTTP/1.1 302) 4 headers in 129 bytes (1 switches on core 0)
Aug 11 17:31:02 10-1-0-27.frontend-service.example.svc.cluster.local frontend: [pid: 7|app: 0|req: 472/474] 127.0.0.1 () {28 vars in 307 bytes} [Sun Aug 11 17:31:02 2019] GET / => generated 0 bytes in 1 msecs (HTTP/1.1 302) 4 headers in 129 bytes (1 switches on core 0)
Aug 11 17:31:04 10-1-0-26.frontend-service.example.svc.cluster.local frontend: [pid: 7|app: 0|req: 476/476] 127.0.0.1 () {28 vars in 307 bytes} [Sun Aug 11 17:31:04 2019] GET / => generated 0 bytes in 1 msecs (HTTP/1.1 302) 4 headers in 129 bytes (1 switches on core 0)
Aug 11 17:31:07 10-1-0-26.frontend-service.example.svc.cluster.local frontend: [pid: 7|app: 0|req: 477/477] 127.0.0.1 () {28 vars in 307 bytes} [Sun Aug 11 17:31:07 2019] GET / => generated 0 bytes in 1 msecs (HTTP/1.1 302) 4 headers in 129 bytes (1 switches on core 0)
Aug 11 17:31:20 10-1-0-27.frontend-service.example.svc.cluster.local frontend: [pid: 7|app: 0|req: 473/475] 127.0.0.1 () {28 vars in 306 bytes} [Sun Aug 11 17:31:20 2019] GET / => generated 0 bytes in 1 msecs (HTTP/1.1 302) 4 headers in 129 bytes (1 switches on core 0)
Aug 11 17:31:32 10-1-0-27.frontend-service.example.svc.cluster.local frontend: [pid: 7|app: 0|req: 474/476] 127.0.0.1 () {28 vars in 307 bytes} [Sun Aug 11 17:31:32 2019] GET / => generated 0 bytes in 14 msecs (HTTP/1.1 302) 4 headers in 129 bytes (1 switches on core 0)
Aug 11 17:31:34 10-1-0-26.frontend-service.example.svc.cluster.local frontend: [pid: 7|app: 0|req: 478/478] 127.0.0.1 () {28 vars in 307 bytes} [Sun Aug 11 17:31:34 2019] GET / => generated 0 bytes in 14 msecs (HTTP/1.1 302) 4 headers in 129 bytes (1 switches on core 0)
```

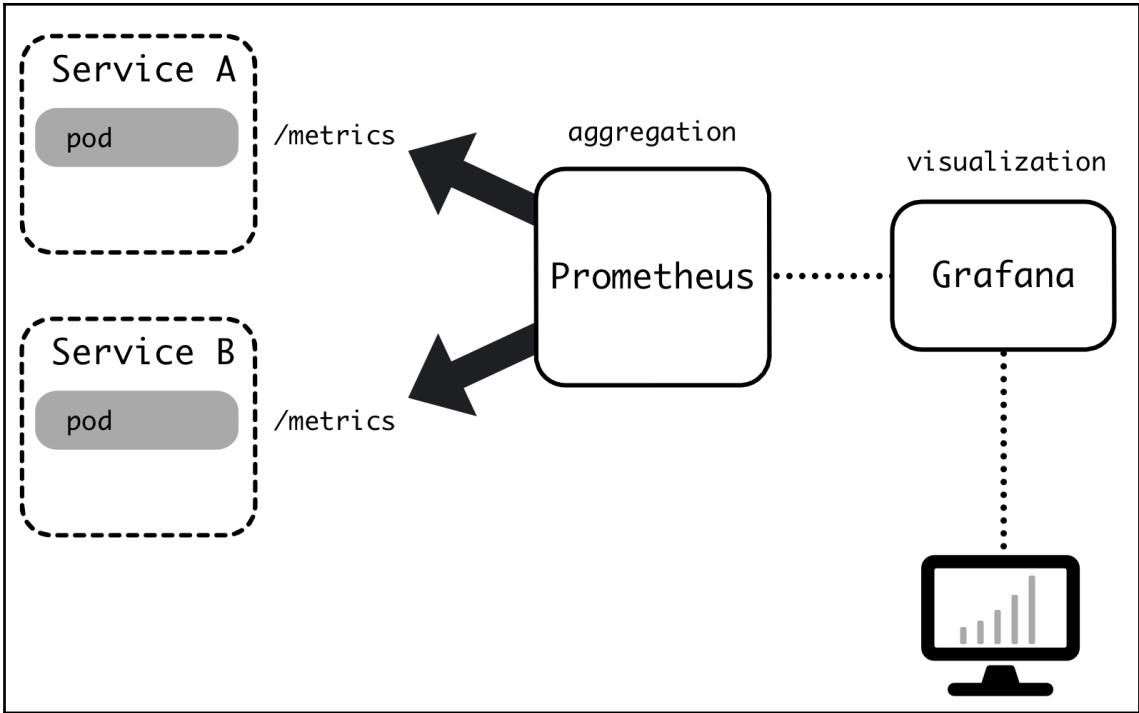


```
tail -f /var/log/syslog

Aug 12 20:25:47 10.1.0.83 frontend_uwsgi: [pid: 7|app: 0|req: 1/1] 127.0.0.1 () {28 vars in 307 bytes} [Mon Aug 12 20:25:47 2019] GET / => generated 0 bytes in 247 msecs (HTTP/1.1 302) 4 headers in 129 bytes (1 switches on core 0)
Aug 12 20:25:50 10.1.0.83 frontend_uwsgi: [pid: 7|app: 0|req: 2/2] 127.0.0.1 () {28 vars in 307 bytes} [Mon Aug 12 20:25:50 2019] GET / => generated 0 bytes in 2 msecs (HTTP/1.1 302) 4 headers in 129 bytes (1 switches on core 0)
Aug 12 20:25:56 10.1.0.82 frontend_uwsgi: [pid: 7|app: 0|req: 1/1] 127.0.0.1 () {28 vars in 307 bytes} [Mon Aug 12 20:25:56 2019] GET / => generated 0 bytes in 144 msecs (HTTP/1.1 302) 4 headers in 129 bytes (1 switches on core 0)
Aug 12 20:26:03 10.1.0.80.thoughts-service.example.svc.cluster.local [2019-08-12 20:26:03,865] INFO [63517c17-5a40-4856-9f3b-904b180688f6] app: REQUEST GET /api/thoughts/?search=speak
Aug 12 20:26:03 10.1.0.80.thoughts-service.example.svc.cluster.local [2019-08-12 20:26:03,962] INFO [63517c17-5a40-4856-9f3b-904b180688f6] api_namespace: Searching with params %speak%
Aug 12 20:26:04 10.1.0.80.thoughts-service.example.svc.cluster.local [2019-08-12 20:26:04,337] INFO [63517c17-5a40-4856-9f3b-904b180688f6] app: RESPONSE TIME 467 ms
Aug 12 20:26:04 10.1.0.80.thoughts-service.example.svc.cluster.local [2019-08-12 20:26:04,338] INFO [63517c17-5a40-4856-9f3b-904b180688f6] app: RESPONSE STATUS 200
Aug 12 20:26:04 10.1.0.80.thoughts-service.example.svc.cluster.local thoughts_backend_uwsgi: [pid: 7|app: 0|req: 1/1] 10.1.0.83 () {32 vars in 445 bytes} [Mon Aug 12 20:26:03 2019] GET /api/thoughts/?search=speak => generated 126 bytes in 475 msecs (HTTP/1.1 200) 3 headers in 124 bytes (1 switches on core 0)
Aug 12 20:26:04 10.1.0.83 frontend_uwsgi: [pid: 7|app: 0|req: 3/3] 10.1.0.87 () {54 vars in 1611 bytes} [Mon Aug 12 20:26:03 2019] GET /search?search=speak => generated 1652 bytes in 637 msecs (HTTP/1.1 200) 3 headers in 110 bytes (1 switches on core 0)
Aug 12 20:26:11 10.1.0.82 frontend_uwsgi: [pid: 7|app: 0|req: 2/2] 127.0.0.1 () {28 vars in 307 bytes} [Mon Aug 12 20:26:11 2019] GET / => generated 0 bytes in 0 msecs (HTTP/1.1 302) 4 he
```

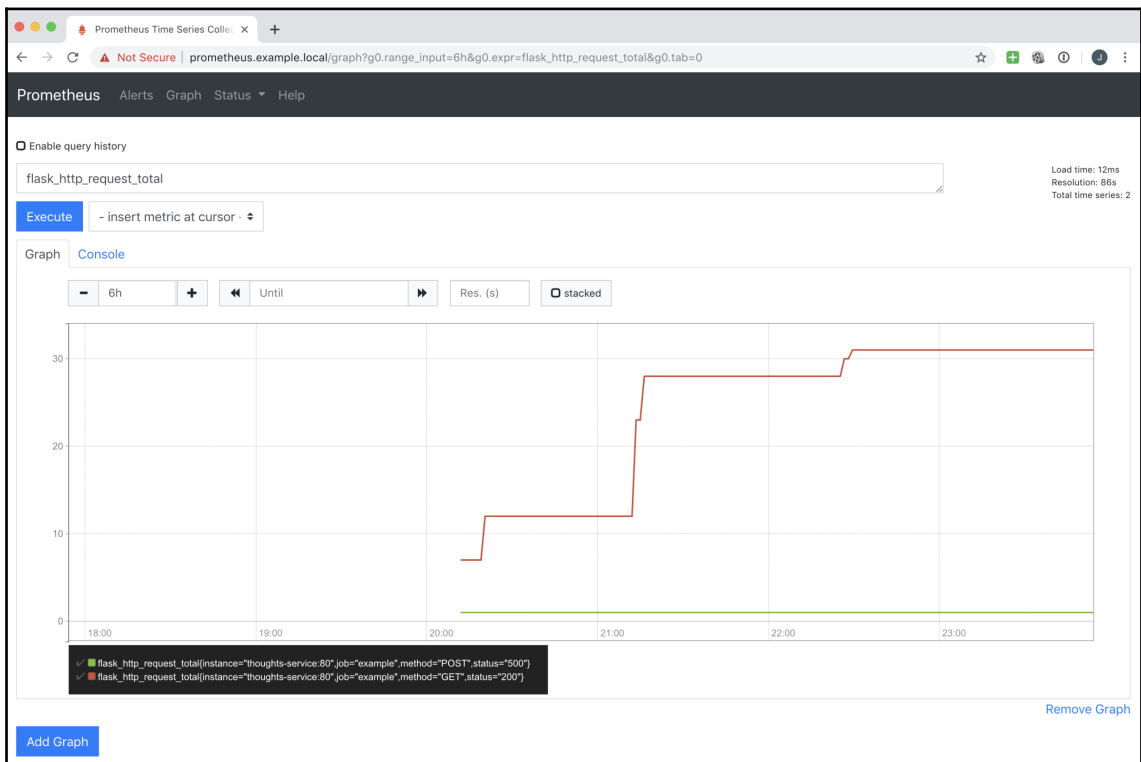
```
tail -f /var/log/syslog

Aug 12 20:36:28 10.1.0.80.thoughts-service.example.svc.cluster.local [2019-08-12 20:36:28,349] ERROR [4596e6cf-f0a8-4fc2-95e7-87f539c43a7c] app: Exception on /api/me/thoughts/ [POST]#012Traceback (most recent call last):#012 File "/opt/venv/lib/python3.6/site-packages/flask/app.py", line 1813, in full_dispatch_request#012 rv = self.dispatch_request()#012 File "/opt/venv/lib/python3.6/site-packages/flask/app.py", line 1799, in dispatch_request#012 return self.view_functions[rule.endpoint](**req.view_args)#012 File "/opt/venv/lib/python3.6/site-packages/flask_restplus/api.py", line 325, in wrapper#012 resp = resource(*args, **kwargs)#012 File "/opt/venv/lib/python3.6/site-packages/flask/views.py", line 88, in view#012 return self.dispatch_request(*args, **kwargs)#012 File "/opt/venv/lib/python3.6/site-packages/flask_restplus/resource.py", line 44, in dispatch_request#012 resp = meth(*args, **kwargs)#012 File "/opt/venv/lib/python3.6/site-packages/flask_restplus/marshalling.py", line 136, in wrapper#012 resp = f(*args, **kwargs)#012 File "/opt/venv/lib/python3.6/site-packages/flask_restplus/marshalling.py", line 80, in post#012 raise Exception('Unexpected error!')#012Exception: Unexpected error!
```



```
thoughts.example.local/metrics x +
Not Secure | thoughts.example.local/metrics

# HELP python_gc_objects_collected_total Objects collected during gc
# TYPE python_gc_objects_collected_total counter
python_gc_objects_collected_total{generation="0"} 3563.0
python_gc_objects_collected_total{generation="1"} 574.0
python_gc_objects_collected_total{generation="2"} 6.0
# HELP python_gc_objects_uncollectable_total Uncollectable object found during GC
# TYPE python_gc_objects_uncollectable_total counter
python_gc_objects_uncollectable_total{generation="0"} 0.0
python_gc_objects_uncollectable_total{generation="1"} 0.0
python_gc_objects_uncollectable_total{generation="2"} 0.0
# TYPE req_time histogram
req_time_bucket{endpoint="prometheus_metrics",le="0.005",method="get",status_code="200"} 0.0
req_time_bucket{endpoint="prometheus_metrics",le="0.01",method="get",status_code="200"} 0.0
req_time_bucket{endpoint="prometheus_metrics",le="0.025",method="get",status_code="200"} 0.0
req_time_bucket{endpoint="prometheus_metrics",le="0.05",method="get",status_code="200"} 0.0
req_time_bucket{endpoint="prometheus_metrics",le="0.075",method="get",status_code="200"} 0.0
```



Prometheus Time Series Collec x +

← → ↻ Not Secure | prometheus.example.local/targets

☆ + ⓘ ⓘ ⓘ ⓘ J ⋮

Prometheus Alerts Graph Status ▾ Help

Targets

All Unhealthy

example (3/3 up) show less

Endpoint	State	Labels	Last Scrape	Scrape Duration	Error
http://frontend-service:80/metrics	UP	instance="frontend-service:80" job="example"	25.783s ago	5.308ms	
http://thoughts-service:80/metrics	UP	instance="thoughts-service:80" job="example"	42.281s ago	8.061ms	
http://users-service:80/metrics	UP	instance="users-service:80" job="example"	38.802s ago	4.578ms	

Home - Grafana x +

← → ↻ Not Secure | grafana.example.local/?orgId=1

☆ + ⓘ ⓘ ⓘ ⓘ ⓘ J ⋮

Home ▾

⚙️ 🖨️

+

⌵

🌟

🔔

⚙️

🛡️

👤

?

Home Dashboard

✓ Install Grafana

🗄️ Create your first data source

🧩 Create your first dashboard

👤 Add Users

🔗 Explore plugin repository

Starred dashboards

Recently viewed dashboards

Dashboard ☆

Installed Apps

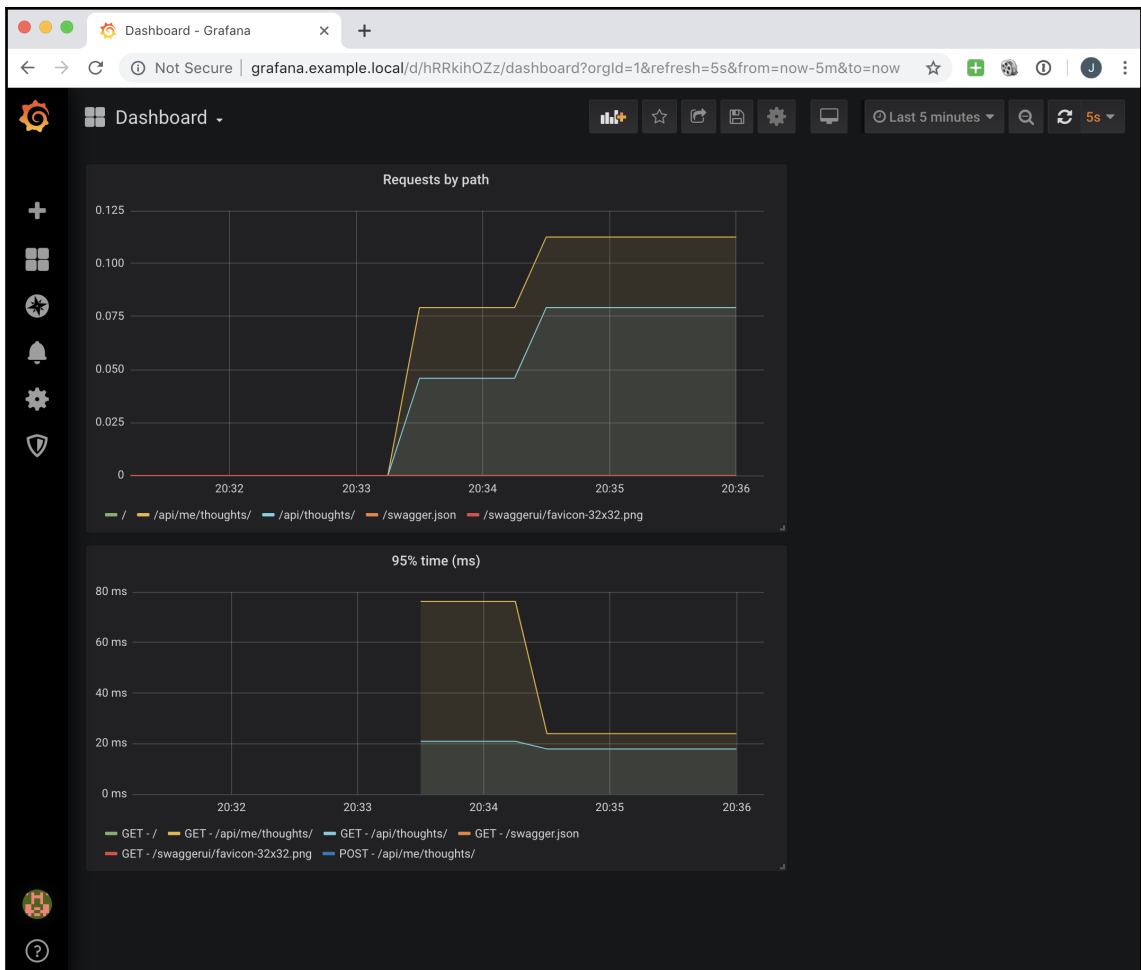
None installed. Browse Grafana.com

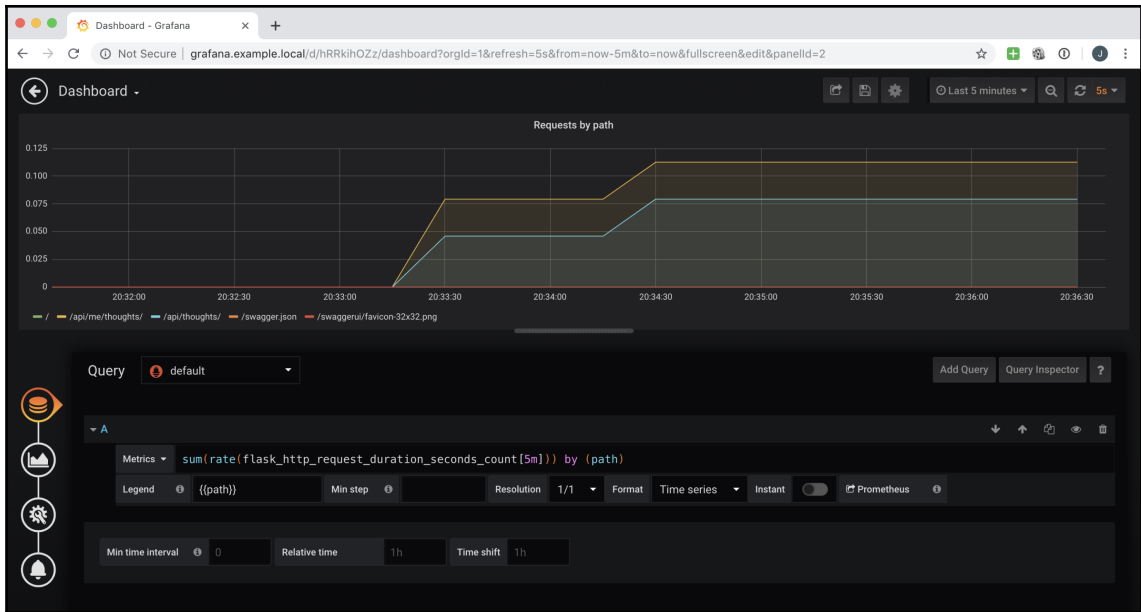
Installed Panels

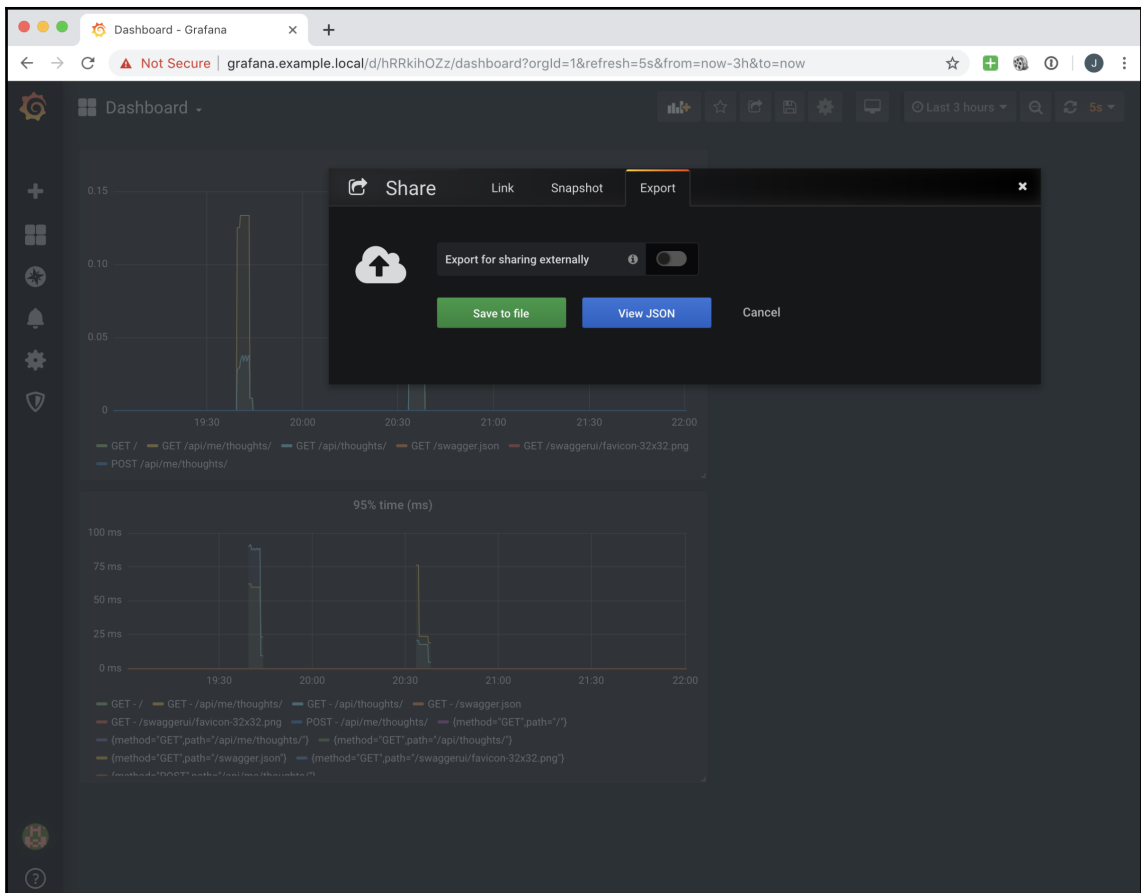
None installed. Browse Grafana.com

Installed Datasources

None installed. Browse Grafana.com







Chapter 11: Handling Change, Dependencies, and Secrets in the System

No color images

Chapter 12: Collaborating and Communicating across Teams

