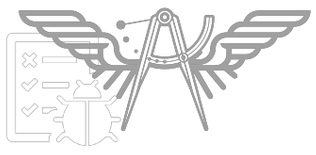
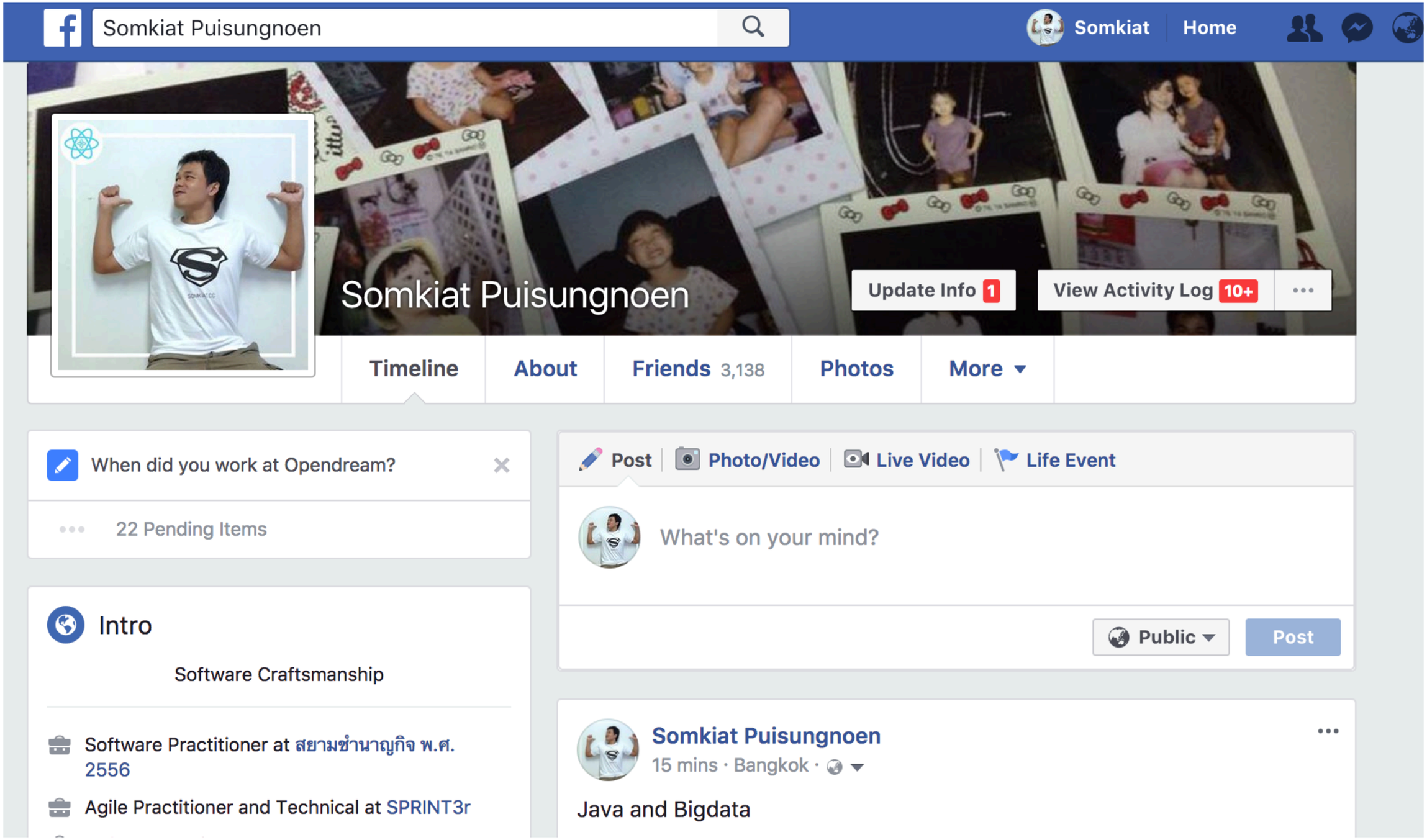
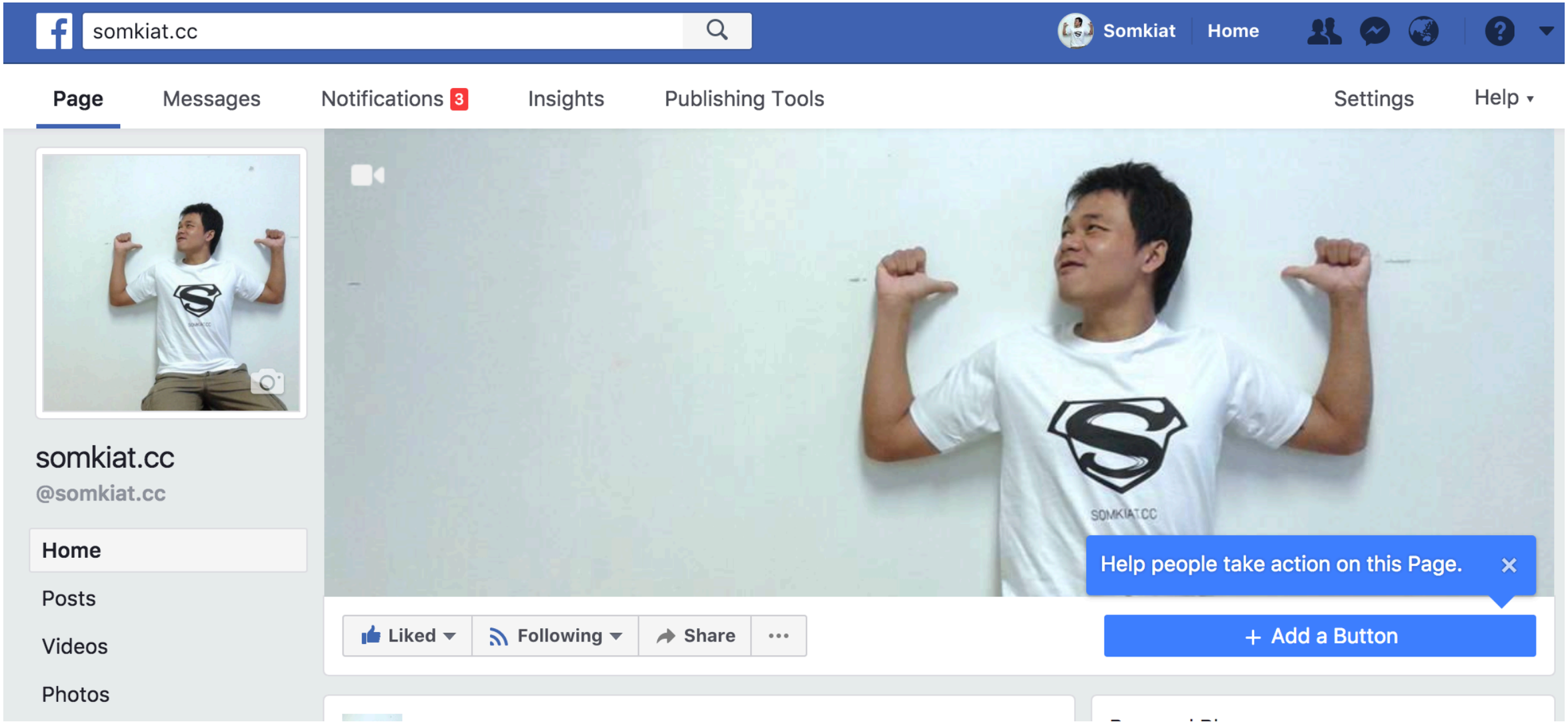
สยามชำนาญกิจ
SIAM CHAMNAN KIT

Microservices workshop







Agenda

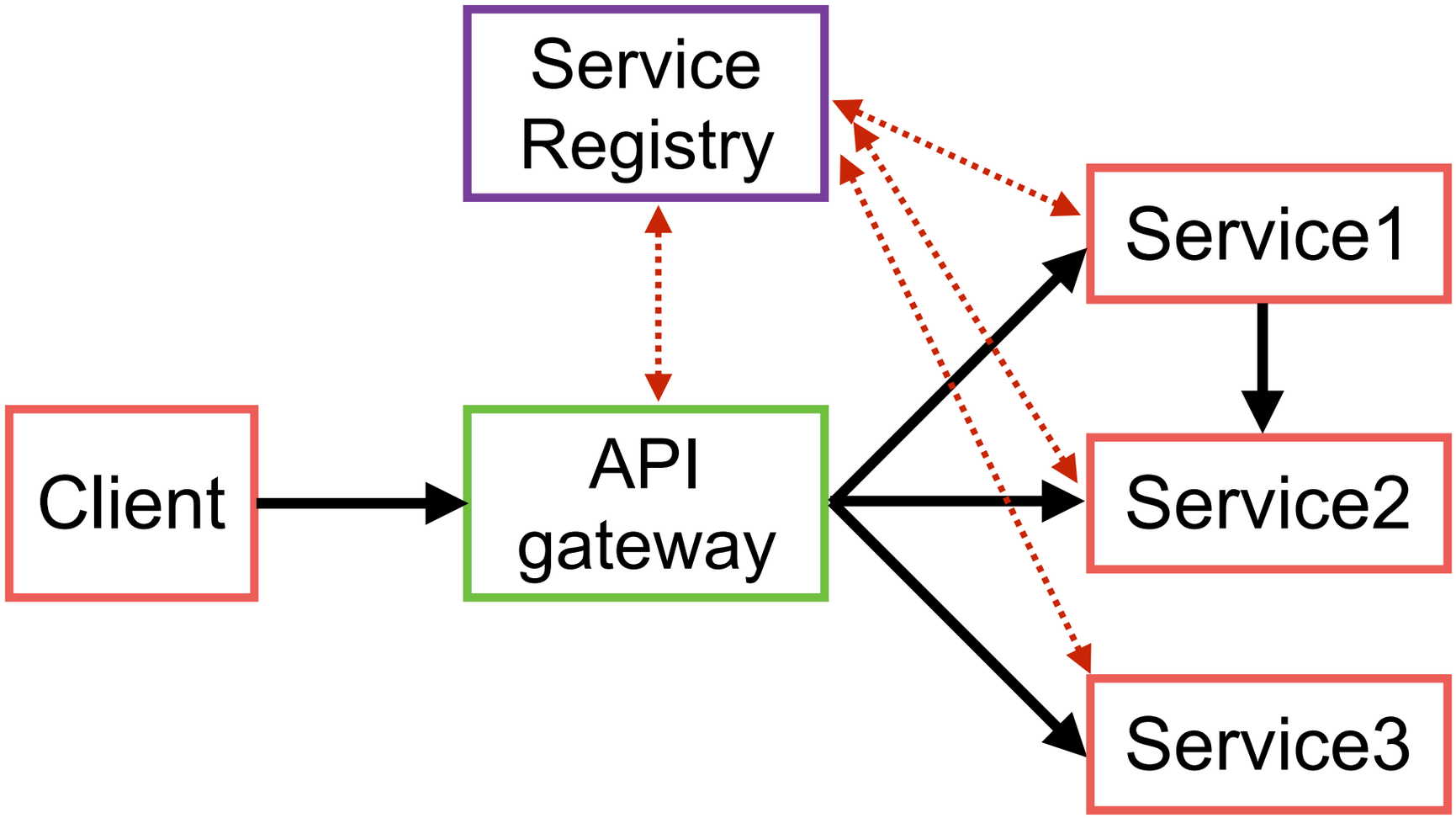
Deploy services with NodeJS
Building images with Docker
Manage containers with docker-compose
Develop deployment pipeline of service

Agenda

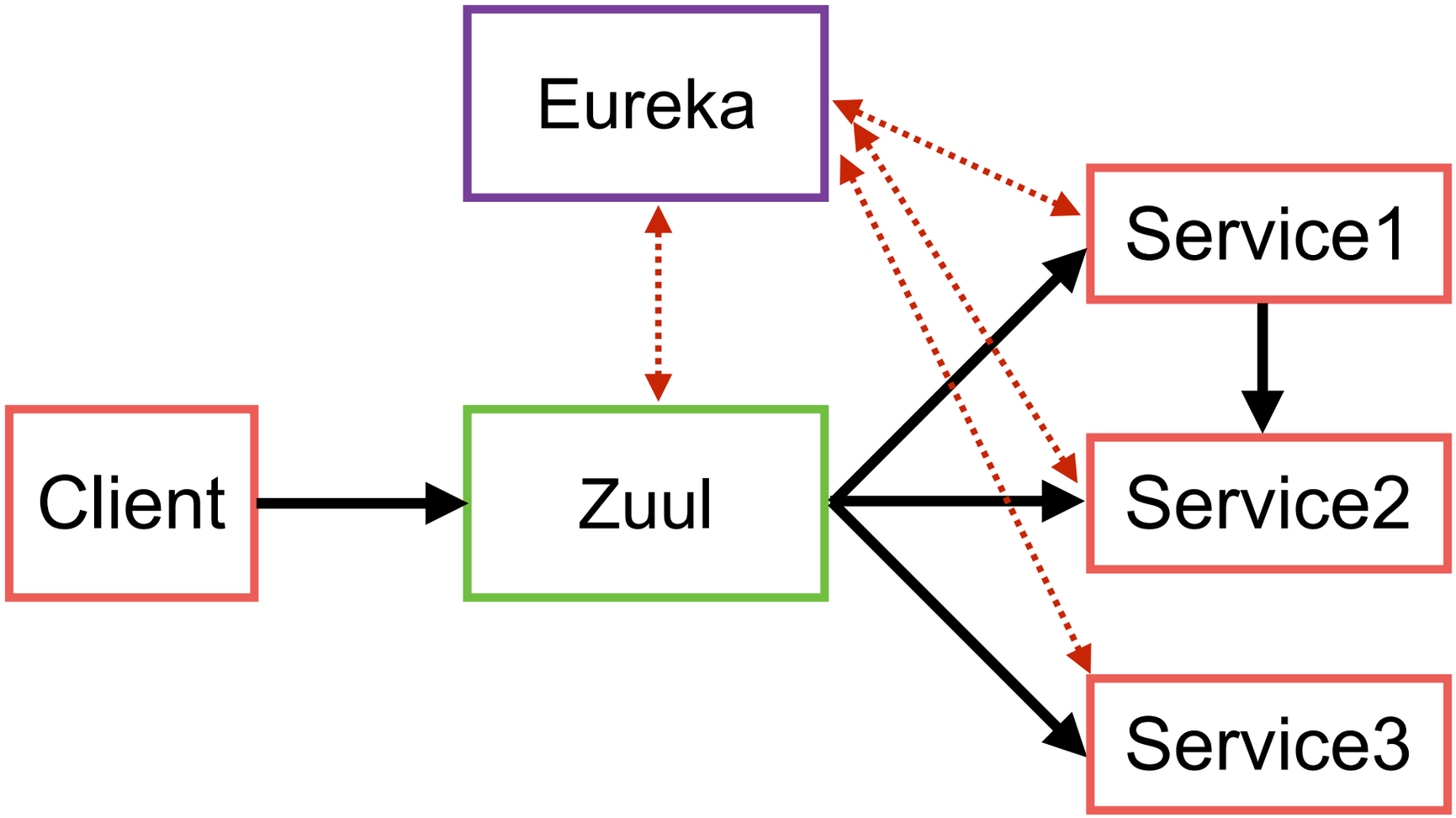
Orchestrate containers with Kubernetes
Rolling update with Kubernetes
Auto-scaling with Kubernetes
Demo deployment with Istio

Deploy Microservice

Original Architecture

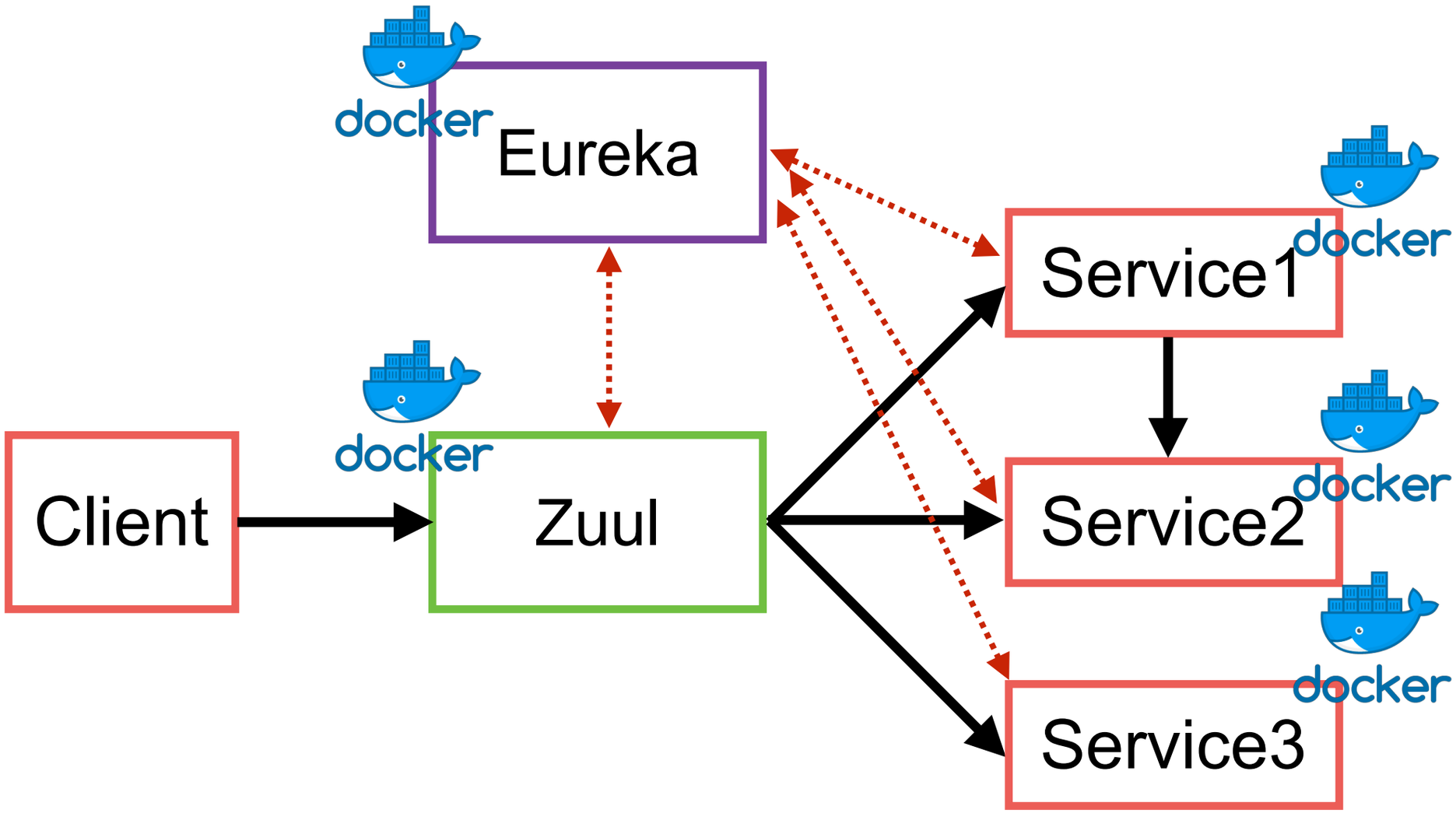


Original Architecture

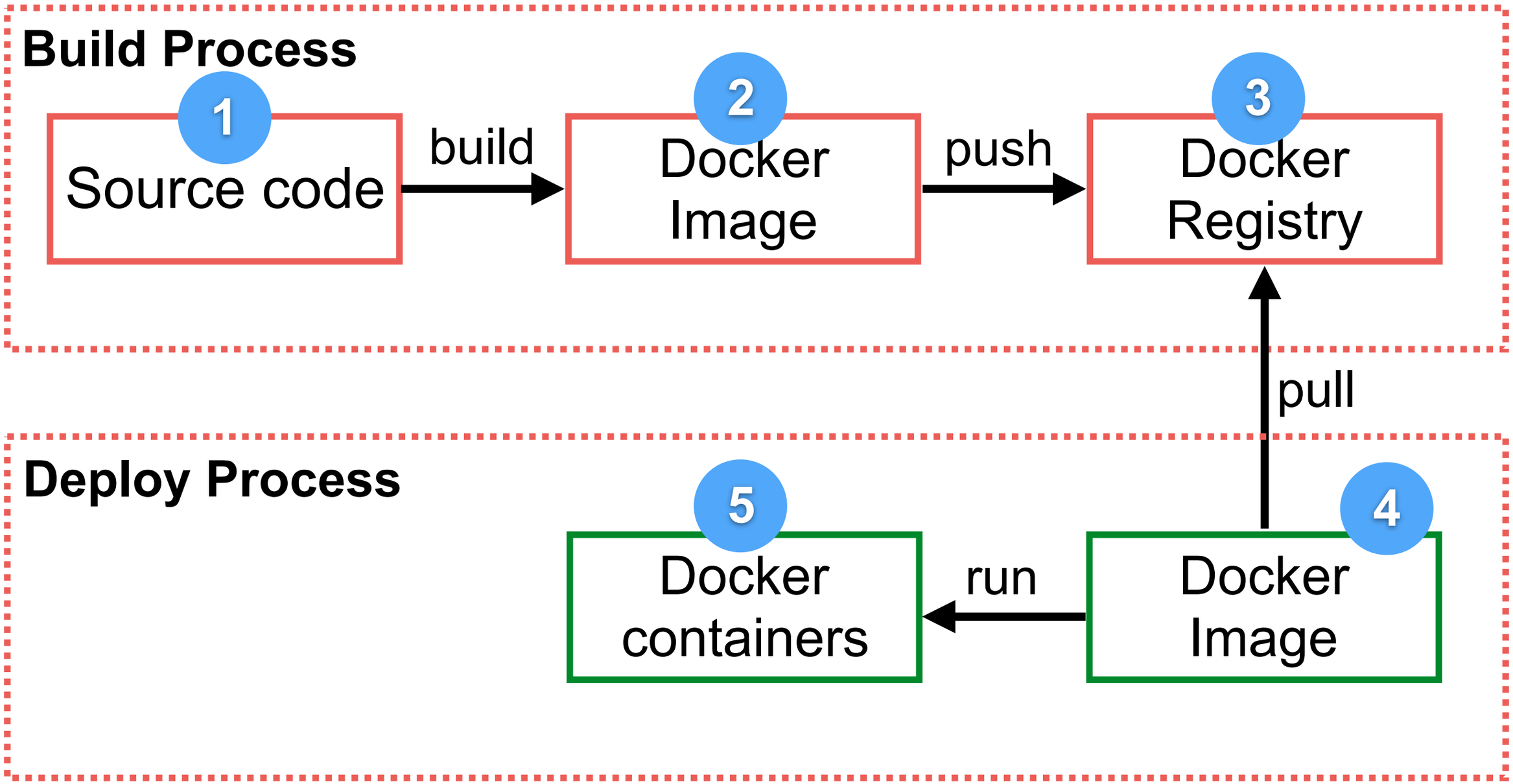


How to deploy with Docker ?

Deploy with Docker



Process to build and deploy



Step 1 :: Organize source code

Step 1 :: Organize source code ?

Single source code repository
Single source code + subdirectory
Source code repository per service

Step 2 :: Build Docker Image

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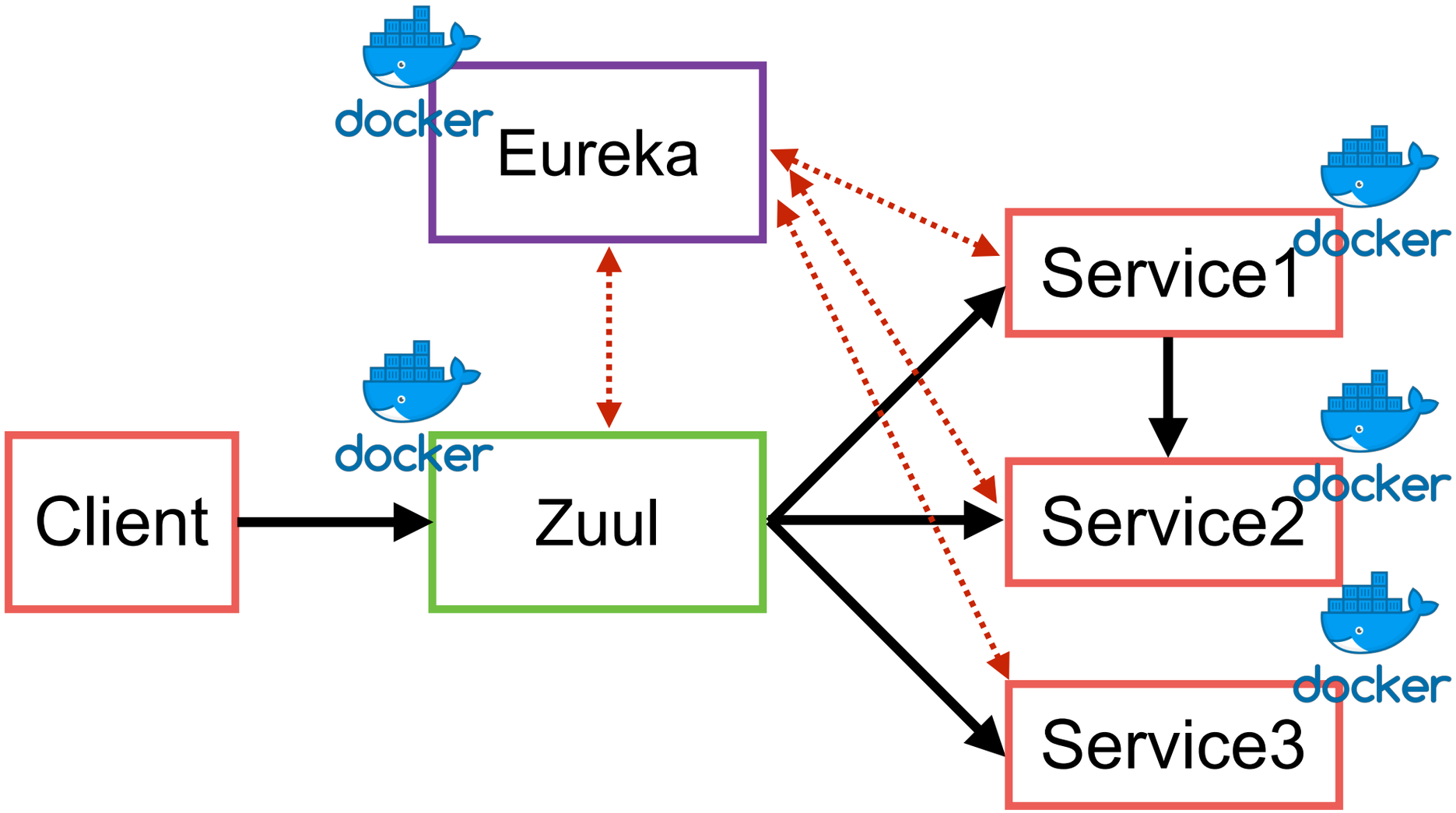
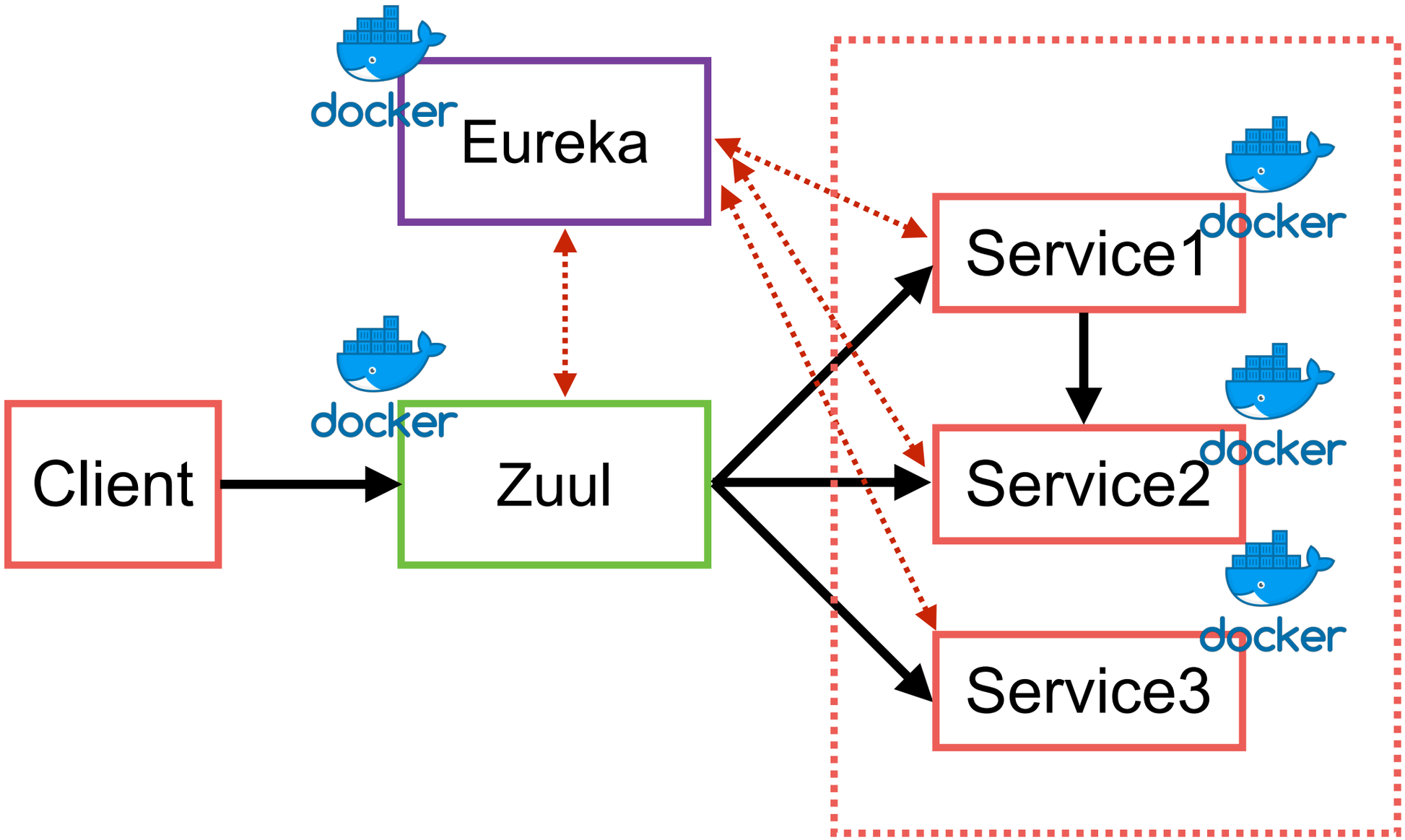


Step 2 :: Build Docker Image



Build image of services

Dockerfile
Docker command
Docker compose

Dockerfile

```
FROM node:10.14.2
WORKDIR /src
COPY package.json .
RUN npm install
COPY . .
EXPOSE 3002
CMD [ "npm", "start" ]
```

Dockerfile

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FROM node:10.14.2
WORKDIR /src
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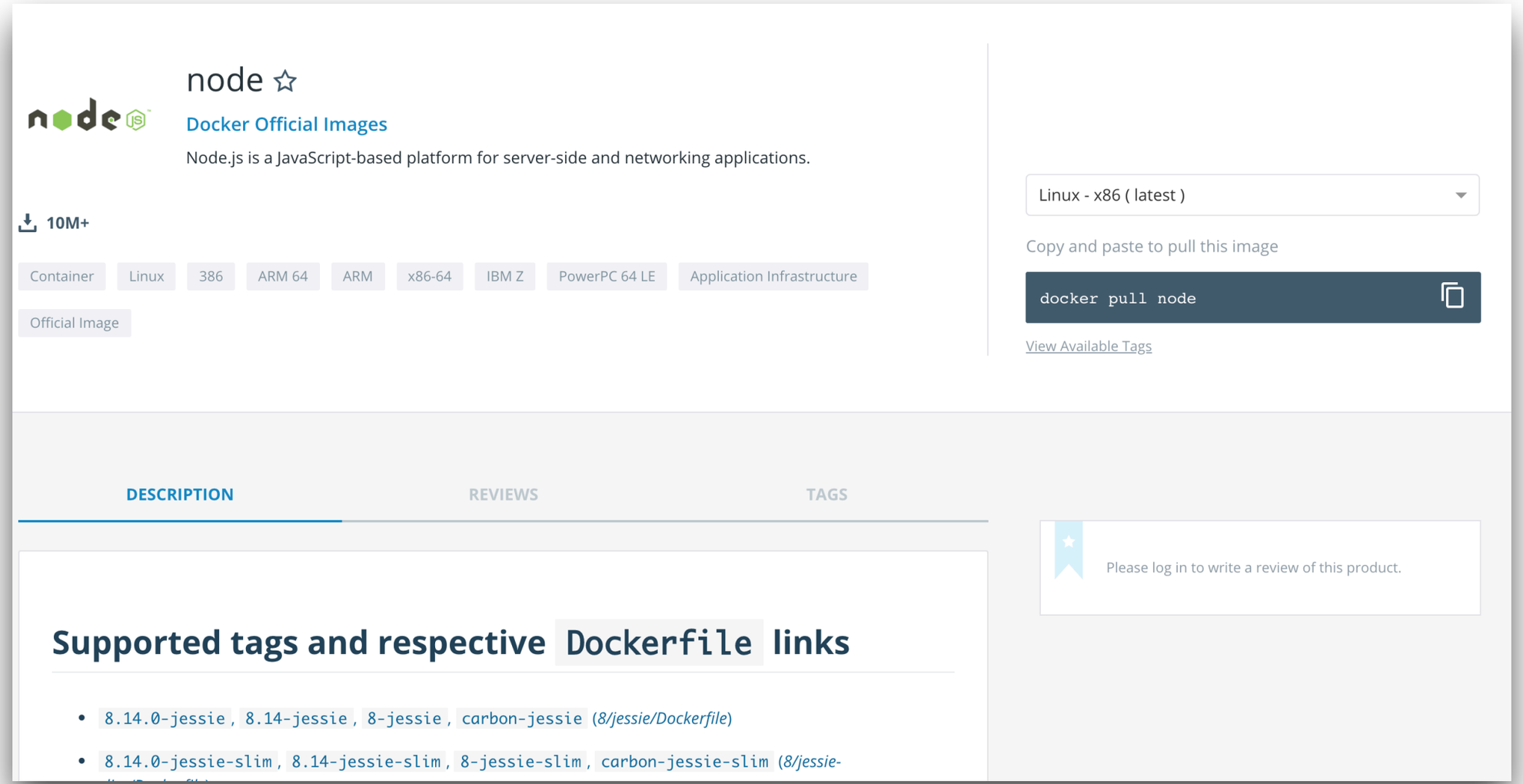
Base Image

Base Image

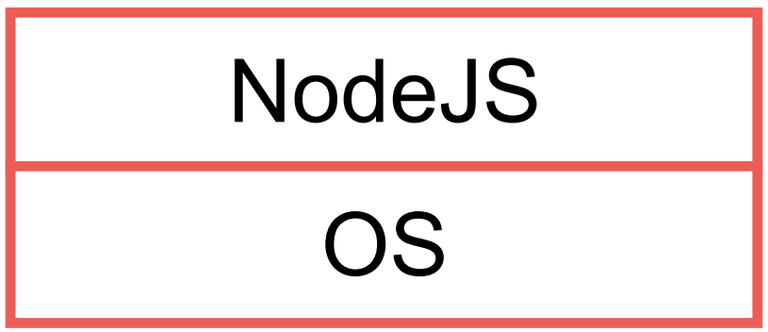
```
FROM node:10.14.2
```



https://hub.docker.com/_/node/

Base Image

```
FROM node:10.14.2
```



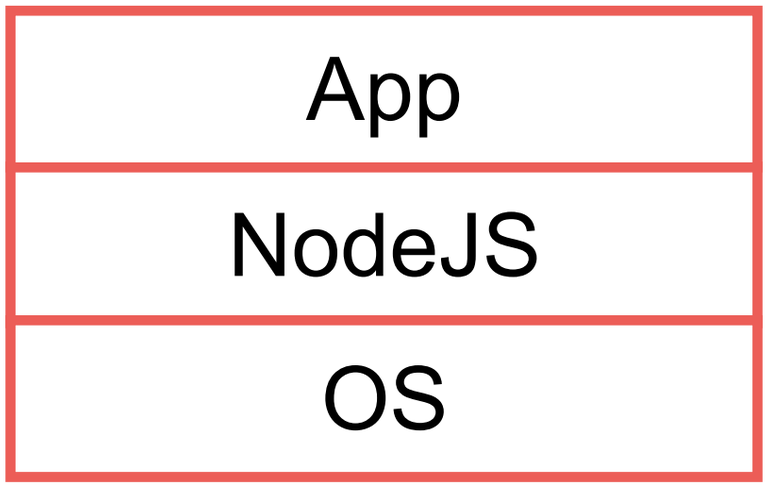
Dockerfile

```
FROM node:10.14.2
WORKDIR /src
COPY package.json .
RUN npm install
COPY . .
EXPOSE 3002
CMD [ "npm", "start" ]
```

Application code and library

Application

```
FROM node:10.14.2
WORKDIR /src
COPY package.json .
RUN npm install
COPY . .
```



Dockerfile

```
FROM node:10.14.2
WORKDIR /src
COPY package.json .
RUN npm install
COPY . .
EXPOSE 3002
CMD [ "npm", "start" ]
```

Start process of service

Build Docker Image

$docker image build -t <name> .

Step 3 :: Keep Docker Image into Docker Registry

Keep Docker Image

Docker registry
Default at Docker Hub

Format name of Docker Image

Name	Meaning
hello-world	Official image at Docker Hub
somkiat/hello-world	Comminity/User image at Docker Hub
http://ip:port/hello-world	**Custom Docker Registry** Server to keep image

Push Docker Image to Registry

$docker image push <name>

Step 4 :: Deploy

Deploy services

Docker command
Docker compose

Docker compose

```yaml
version: '3.7'
services:

  service1:
    image: somkiat/service1
    build:
      context: ./service1
    ports:
      - "3001:3000"

  service2:
    image: somkiat/service2
    build:
      context: ./service2
```

Docker compose

```yaml
version: '3.7'
services:

  service1:
    image: somkiat/service1
    build:
      context: ./service1
    ports:
      - "3001:3000"

  service2:
    image: somkiat/service2
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      context: ./service2
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Docker compose

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version: '3.7'
services:

  service1:
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      context: ./service1
    ports:
      - "3001:3000"

  service2:
    image: somkiat/service2
    build:
      context: ./service2
```

Run with docker compose

$docker-compose build
$docker-compose up
$docker-compose down

Docker compose file by process

Build

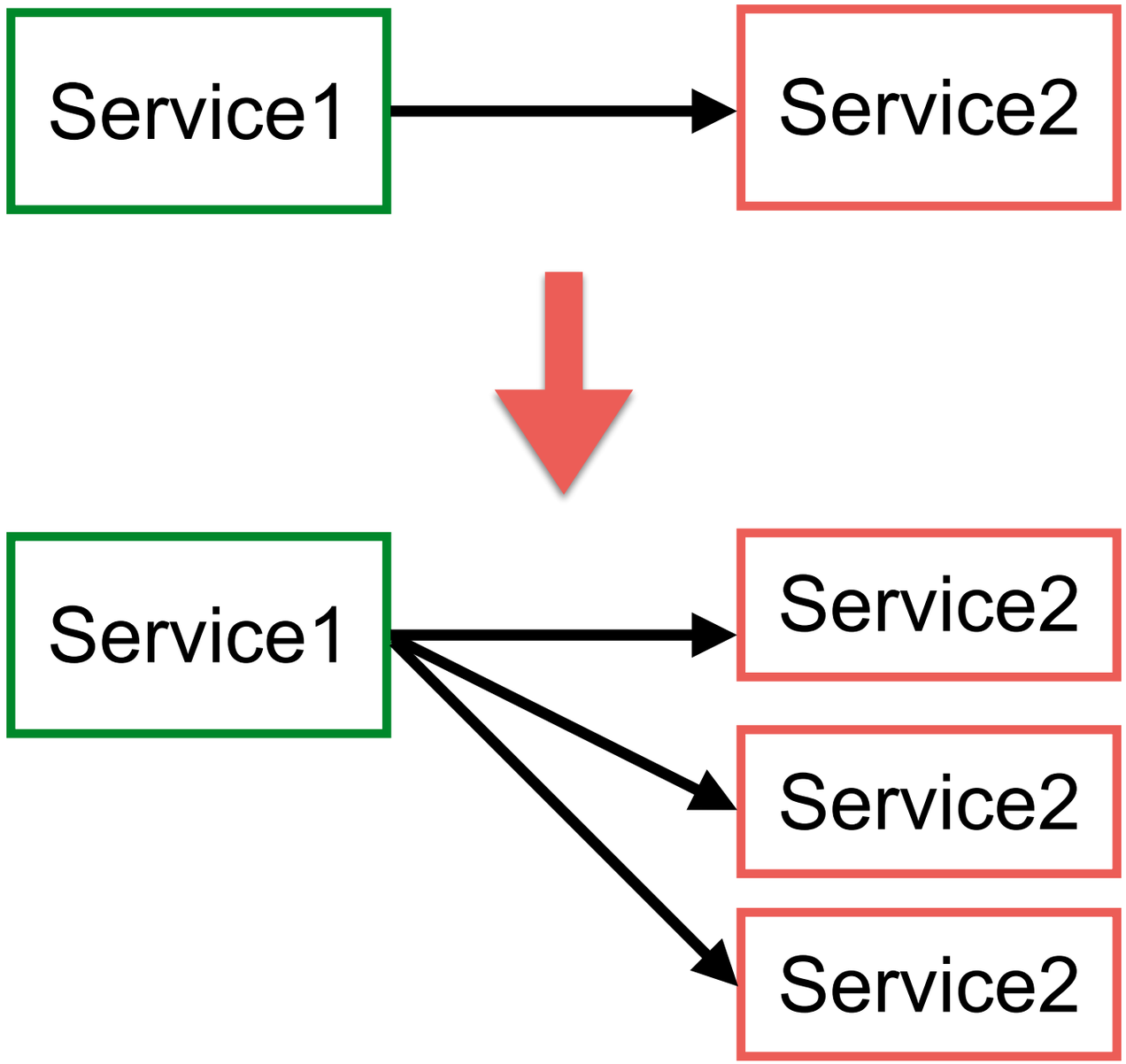
docker-compose.yml

Deploy

docker-compose-deploy.yml

Step 5 :: Scale services

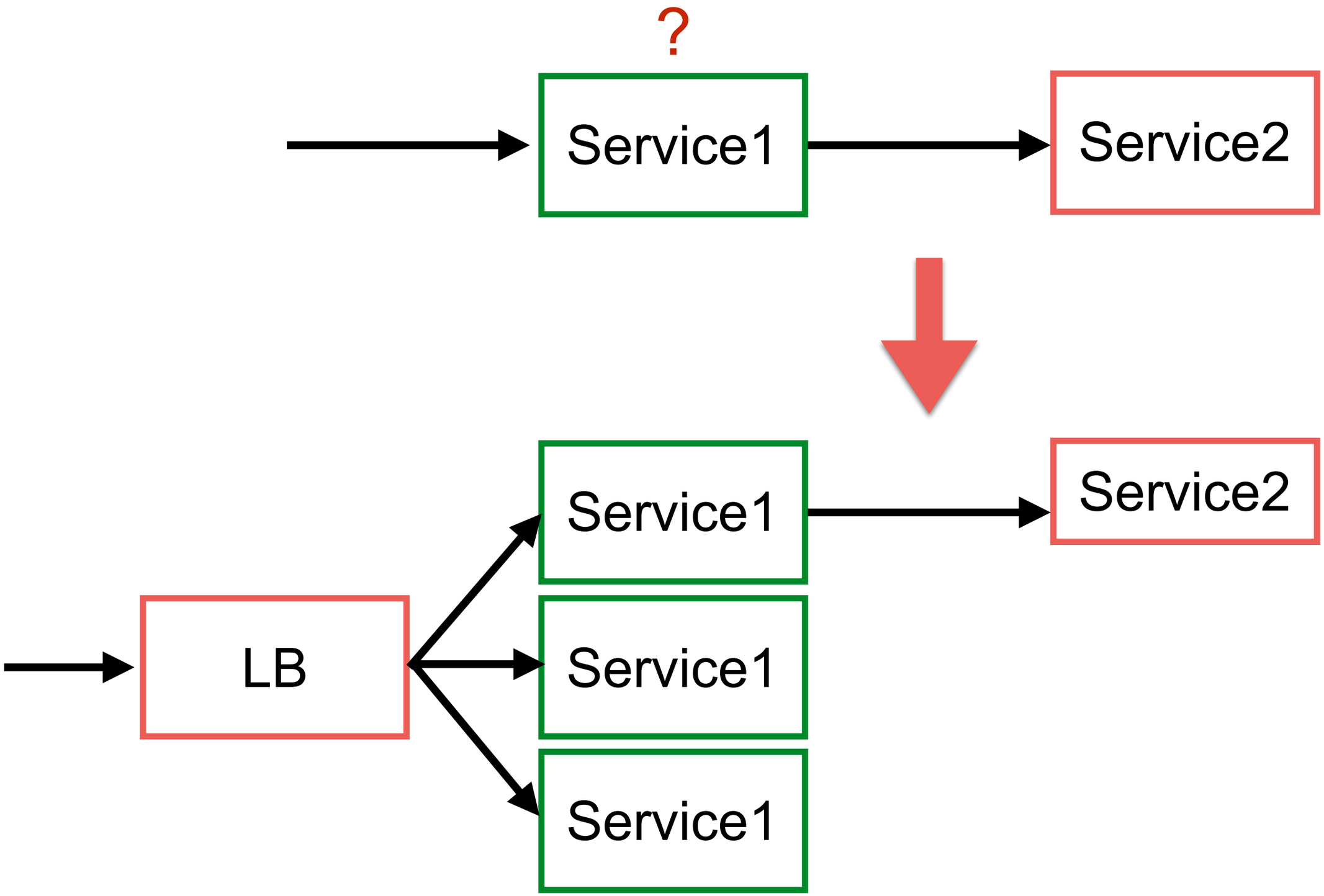
Scale services



Run with docker compose

$docker-compose up --scale service2=3

Scale services



Run with docker compose

$docker-compose -f **docker-compose-lb.yml** up **--**scale service1=3