

Deploy an API gateway with Docker

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- ▶ I work as **Platform Tech Lead** at **Oxford University Press (OUP)**
- ▶ I am responsible for **system architecture and DevOps** (CI, Docker, AWS, deployment)
- ▶ I started using **APIs and Docker** in 2014-15 for developing language resources at OUP

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- ▶ Oxford University Press (OUP) is a world-renowned **dictionary publisher**
- ▶ OUP launched the Oxford Global Languages (OGL) initiative to **digitize under-represented languages**
- ▶ OUP launched languages websites for **Zulu, Northern Sotho, Malay, Urdu, Indonesian, and Setswana**

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- ▶ **Localized websites and digital access** for multiple languages
- ▶ Language communities contributing content (**crowdsourcing**)
- ▶ Supporting **digitally under-represented languages**
- ▶ **Flexible data** serving multiple needs



Zulu language website powered by APIs and Docker

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ABOUT LOGIN ULIMI LWESAYITHI ▾

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▼ Eng > Zu

Type word or phrase



[Home](#) > [Translate](#) > [English to isiZulu](#) > [container](#)

Translation of *container* in isiZulu

container



NOUN (plural **containers**)

isiphathizinto, isitsha

Examples

Fill this container with water

Gcwalisa lesi phathizinto ngamanzi

Be part of the
living dictionary

ADD A WORD

Newly added words

[assemblage](#)

[sbex_mthembu329](#)

[crafts](#)

[junineo](#)

[Image](#)

[kekeletso](#)

[carving](#)

[THALENTE](#)

ADD A WORD 

How do you say **raffle**
in isiZulu?

How do you say **snack**
in isiZulu?

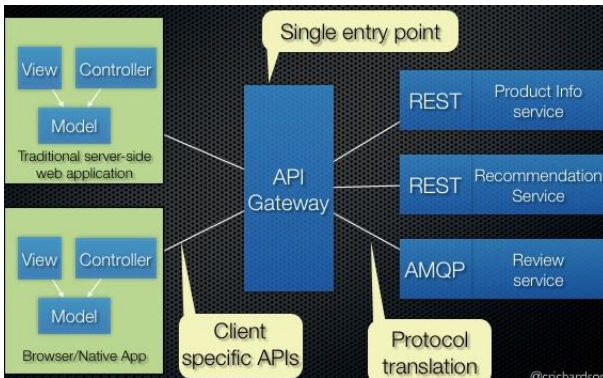
API Gateway



What is an API gateway?

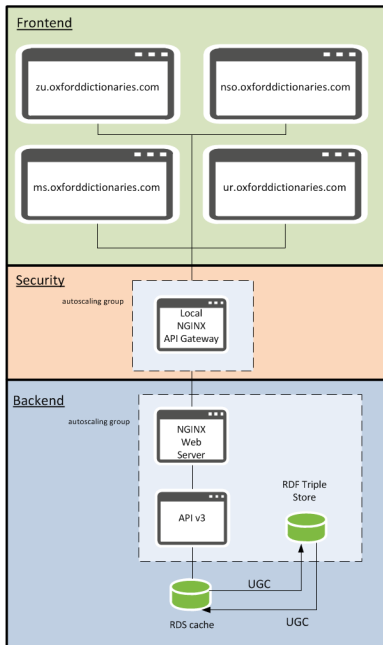
- ▶ An API gateway is a **single entry point for APIs** in a service infrastructure
- ▶ It provides **authentication and authorization** layers
- ▶ It **routes, load balances, and caches** requests to the API

What is an API gateway?



Source: <http://microservices.io/patterns/apigateway.html>

Microservices architecture for OGL project



Docker

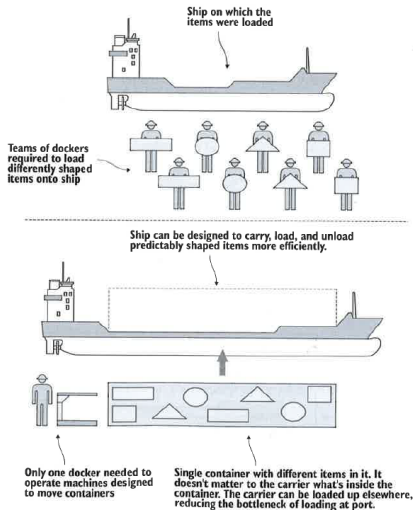


What is Docker

- ▶ Docker is an open-source project that automates the **deployment of applications into software containers**
- ▶ Docker packages an application with all of its dependencies - no more **"worked on my machine" problems**
- ▶ Docker **isolates applications and resources**
- ▶ Docker guarantees that the system will run the same regardless of the running environment - **build, ship, and run any app, anywhere**



Traditional vs Docker Deployment



Source: Miell, I. and Sayers, A. H. (2016) *Docker in Practice*, Manning.

Object-oriented programming analogy:

- ▶ Docker **images** are like **classes**
- ▶ Docker **images** are **blueprints**
- ▶ Docker **images** are like **recipes**
- ▶ Docker **containers** are like **objects**
- ▶ Docker **containers** are **concrete instances of Docker images**
- ▶ Docker **containers** are like **dishes**


Why using Docker for an API gateway?

- ▶ **Infrastructure as code**
- ▶ **Replicate configuration** accross environments
- ▶ Avoid **dependencies conflicts**
- ▶ Facilitate **portability and automation**

Technical Configuration

- ▶ Dockerfile
- ▶ nginx and 3scale
- ▶ https and SSL certificates





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Tagged:

Currently contains 1 post

Anonymous User

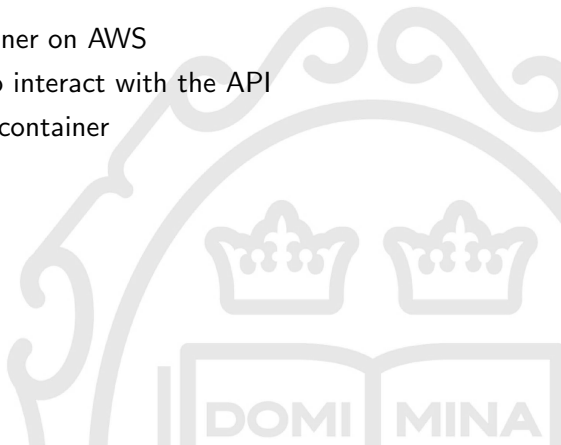
Published on: 6 Oct, 2015 03:15AM

Does 3scale have a Dockerfile to deploy the API gateway in a container?

Thanks!

Demo

- ▶ Build and run a container on AWS
- ▶ Run curl commands to interact with the API
- ▶ Debug logs inside the container



- ▶ **Reusability:** spin up new containers in no time
- ▶ **Portability:** migrate quickly to bigger machines or from bare-metal to the cloud
- ▶ **Automation:** deployment is easily automated and less error-prone

Alternative Approaches

Docker API gateway from 3scale

Check out the 3scale implementation of a Docker API gateway:

<https://github.com/3scale/docker-gateway>

Alternative Approaches

Serverless Architecture

Check out:

- ▶ Mikael Puitinen's workshop on AWS Serverless
- ▶ Nicolas Grenié's presentation on Serverless API

Some considerations:

- ▶ Check your **use cases and application architecture**
- ▶ Make a **cost analysis**
- ▶ Check your **cloud provider**
- ▶ **Server and serverless architectures can coexist**

- ▶ An **API gateway is a single entry point for APIs** and provides authentication and authorization layers
- ▶ Docker makes it easier to **replicate the configuration across multiple environments**
- ▶ Docker **automates deployment and makes it less error-prone**

Thank you for your attention!

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Slides:

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GitHub:

github.com/cirulls/docker-api-gateway

Links:

OGL programme: www.oxforddictionaries.com/ogl