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A currency conversion app

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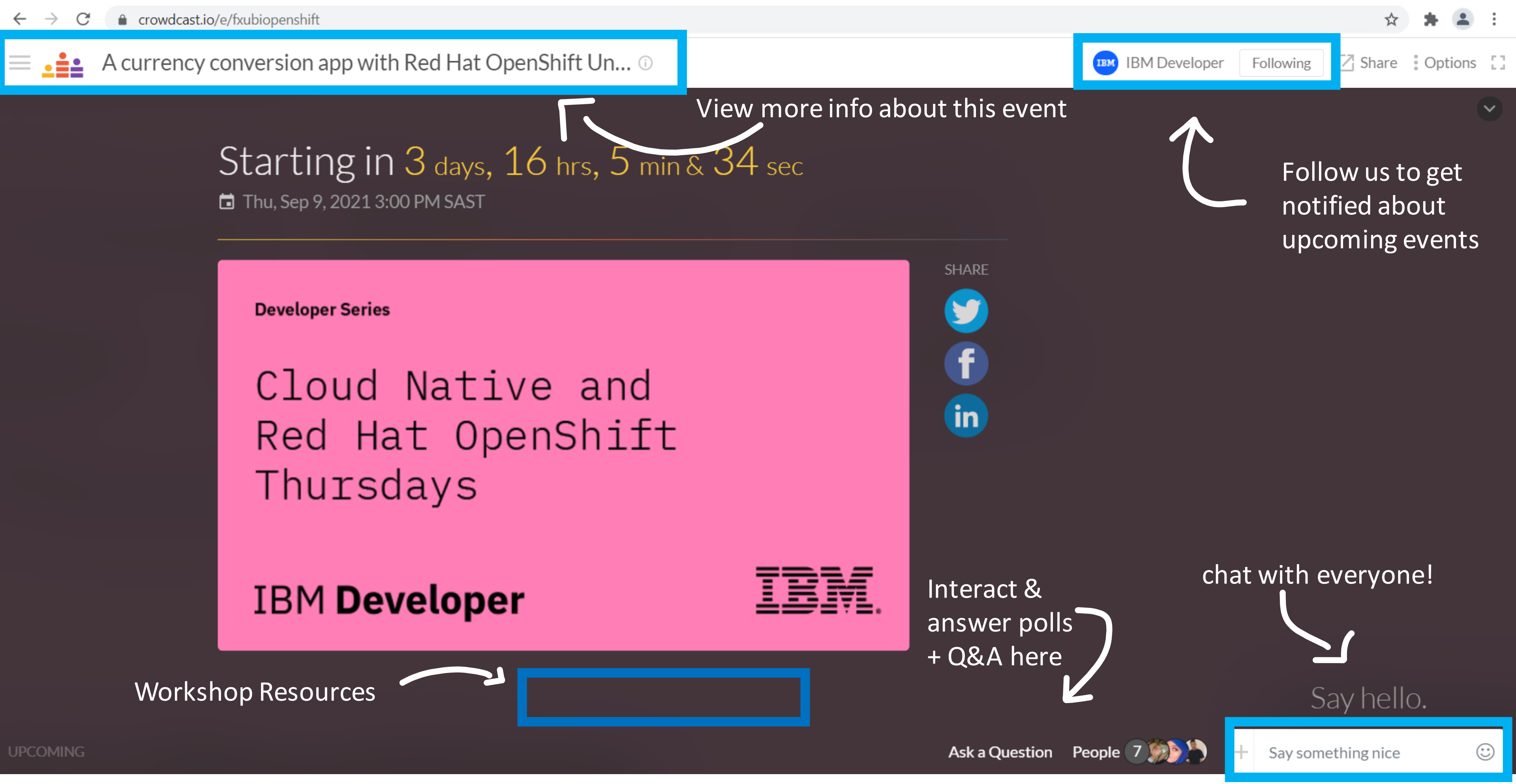
Client Developer Advocate, Egypt


crowdcast.io/e/fxubiopenshift

A currency conversion app with Red Hat OpenShift Un...

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Thu, Sep 9, 2021 3:00 PM SAST

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UPCOMING

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Contents

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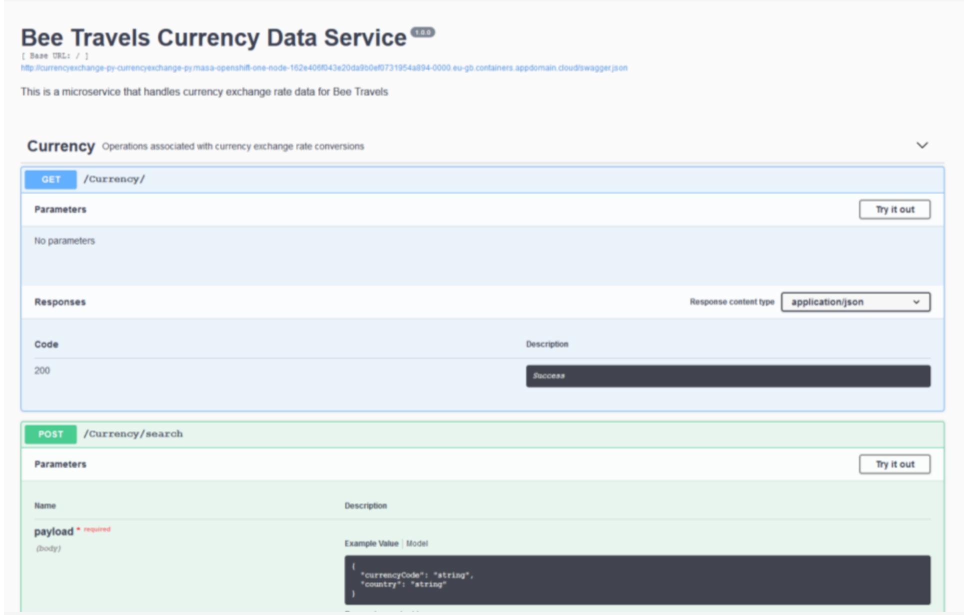
Use Case

We want to deploy a Python currency exchange application to OpenShift 4 using UBI.

The UBI (Universal Base Image) is responsive, highly secure, and resilient.

We want to create a Python microservice with a REST interface that has a swagger test harness - where you can manually inspect, discover, and run the various API endpoints



Bee Travels Currency Data Service 1.0.0

[Base URL: /]

http://currencyexchange-py-currencyexchange-py.masa-openshift-one-node-162e406f043e20da9b0ef0731954a894-0000.eu-gb.containers.appdomain.cloud/swagger.json

This is a microservice that handles currency exchange rate data for Bee Travels

Currency Operations associated with currency exchange rate conversions

GET /currency/

Parameters

No parameters

Responses

Code	Description
200	Success

POST /currency/search

Parameters

Name	Description
payload * required (body)	Example Value | Model

```
{
  "currencyCode": "string",
  "country": "string"
}
```

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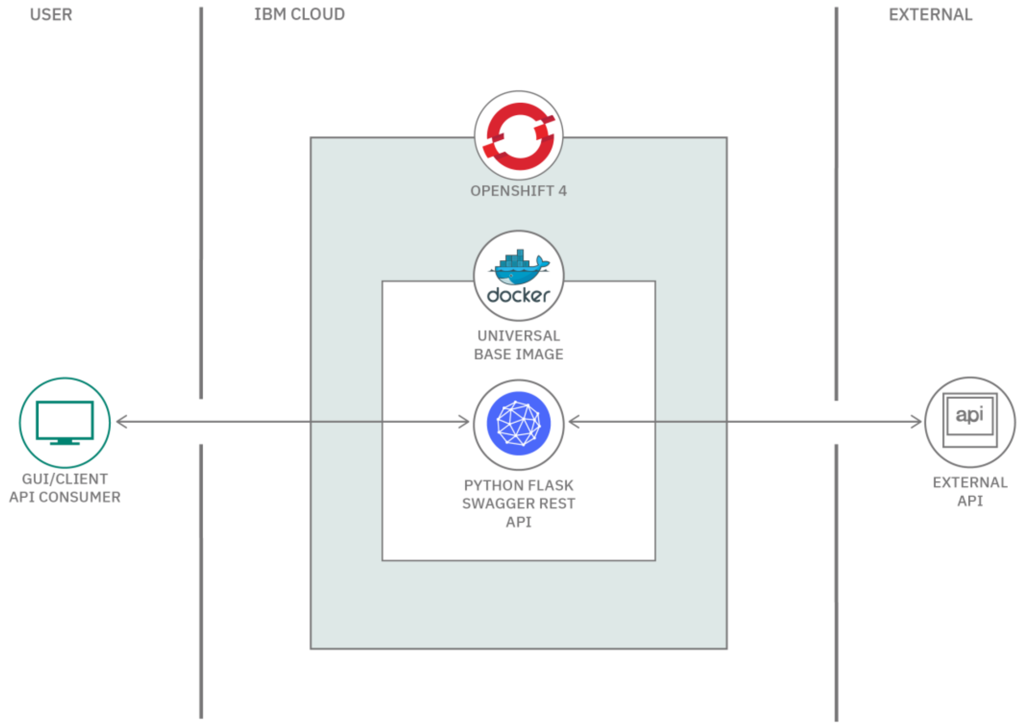
Application Architecture



Deployment Models

We can either deploy the application on RedHat OpenShift or opt to run it locally using Code Ready Containers.

We can use the IBM Cloud Shell as described in the lab, this will then use our OpenShift Cluster on IBM Cloud or we can alternatively run the same commands on our local machine using Code Ready Containers.

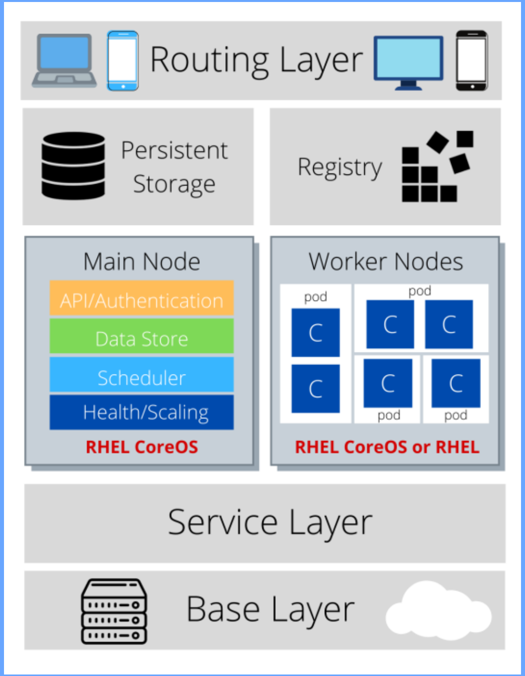
Container Registry

The IBM Container Registry allow us to manage Docker container images in a fully managed private registry.

We we’ll use Docker Hub to store our images workshop, which is a library and community for container images.

The end goal is Container Orchestration - the process of automating the deployment, scaling and management of containerized applications.

Openshift Architecture



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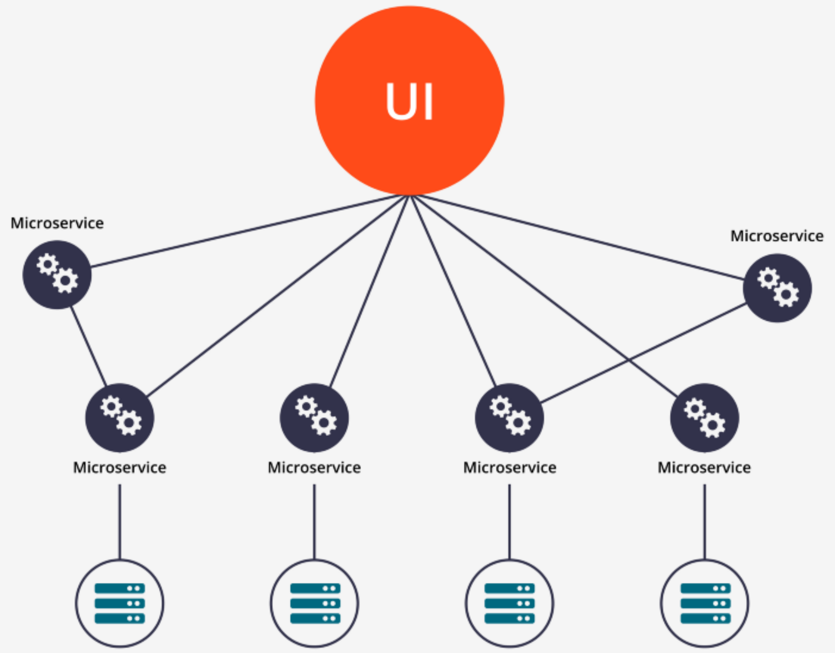
Microservices

An architectural style that structures an application as a collection of services.

Each microservice:

- Is organized around a business capability
- Has a defined interface to communicate with other services
- Can support a different technology stack
- Can support a separate team of developers



Microservice Architecture

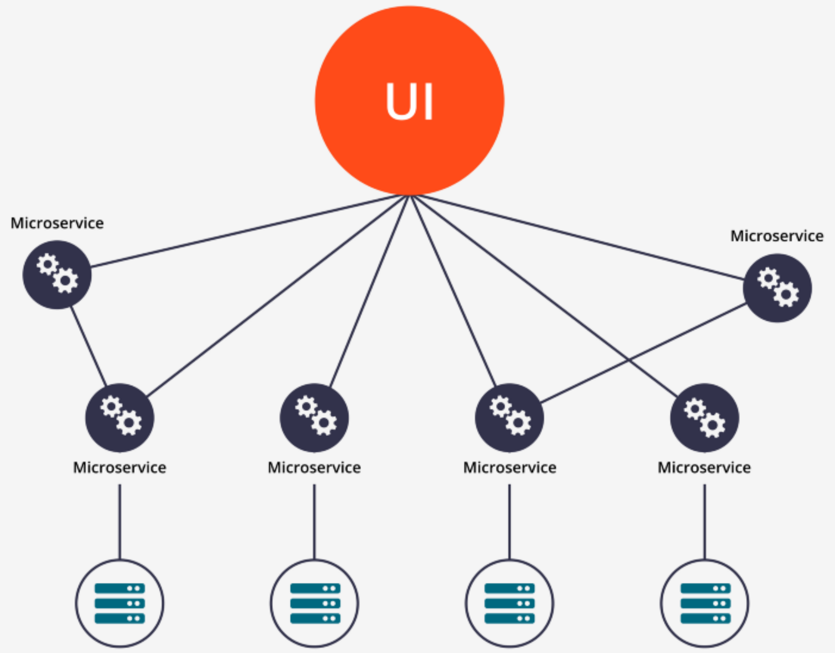
Microservices vs Monolithic

Some of the challenges of monolithic applications can be solved with microservices, which are:

– Highly maintainable and testable

– Loosely coupled

– Independently deployable



Microservice Architecture

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Docker

Developers can create containers without Docker, but the platform makes it easier, simpler, and safer to build, deploy and manage containers.

Docker containers makes it easy for Developers to quickly test a piece of software in a container, much quicker than a virtual machine, and using less resources.

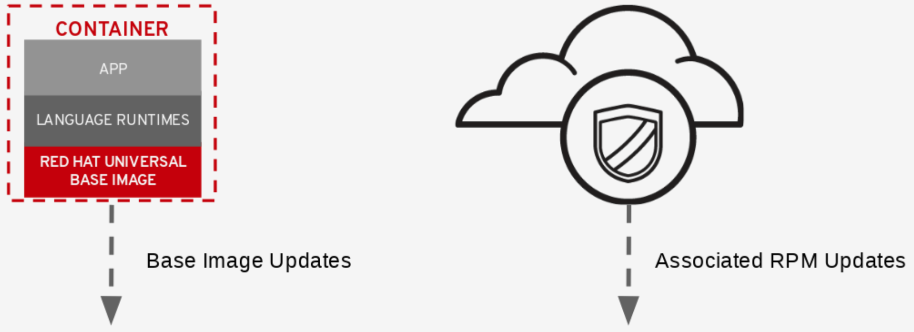
https://developers.redhat.com/blog/2014/05/15/practical-introduction-to-docker-containers

UBI

UBIis a base operating system image.

It's responsive, highly secure, and resilient.

As its name suggests, we can use it universally, for anything we choose - we can build our images on any platform, and then distribute it freely to run anywhere we want.



https://www.redhat.com/en/blog/introducing-red-hat-universal-base-image

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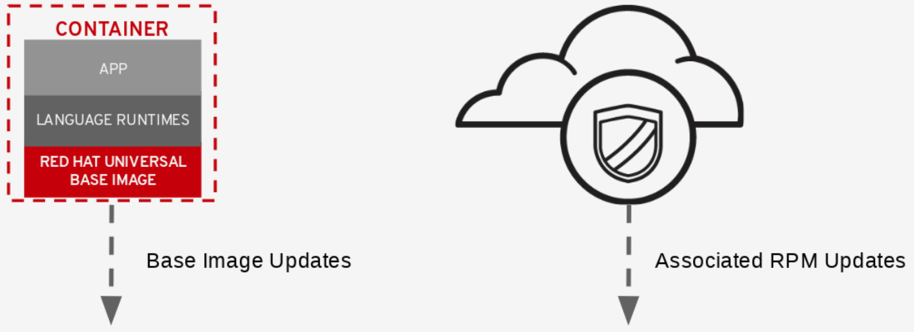
UBI

With UBI, we use familiar yum commands to install standard RPM repositories and packages.

We can build and run images anywhere, on any platform. For example, we can build and run on different operating systems like MacOS, Linux, and Windows.

UBI is designed to be a foundation for cloud-native and web applications use cases, developed in containers.

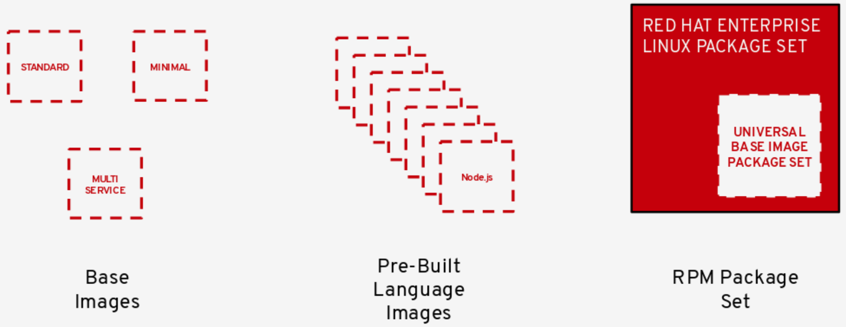


https://www.redhat.com/en/blog/introducing-red-hat-universal-base-image

UBI

UBI is three things:

1. A set of three base images (ubi, ubi-minimal, ubi-init)
2. A set of language runtime images (nodejs, ruby, python, php, perl, etc.)
3. A set of associated packages in a YUM repository which satisfy common application dependencies


STANDARD
MINIMAL
MULTI SERVICE
Base Images
Node.js
Pre-Built Language Images
RED HAT ENTERPRISE LINUX PACKAGE SET
UNIVERSAL BASE IMAGE PACKAGE SET
RPM Package Set

https://www.redhat.com/en/blog/introducing-red-hat-universal-base-image

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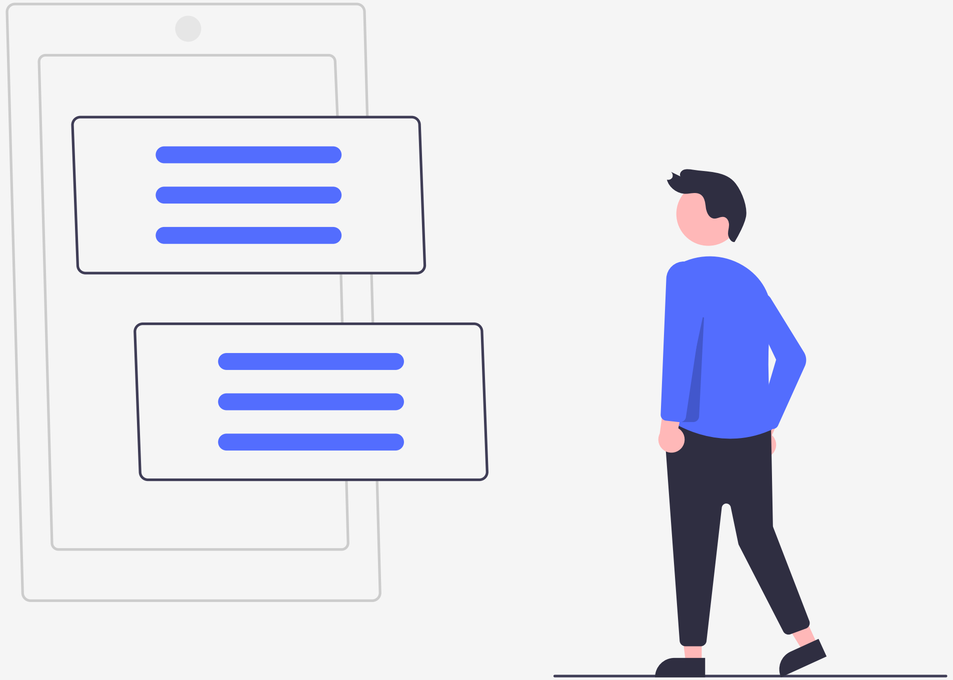
https://ibm.biz/Bdfp4n



Thank you

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