

Scalable, Available and Reliable Cloud Applications with PaaS and Microservices



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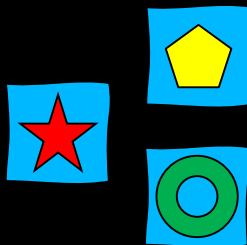
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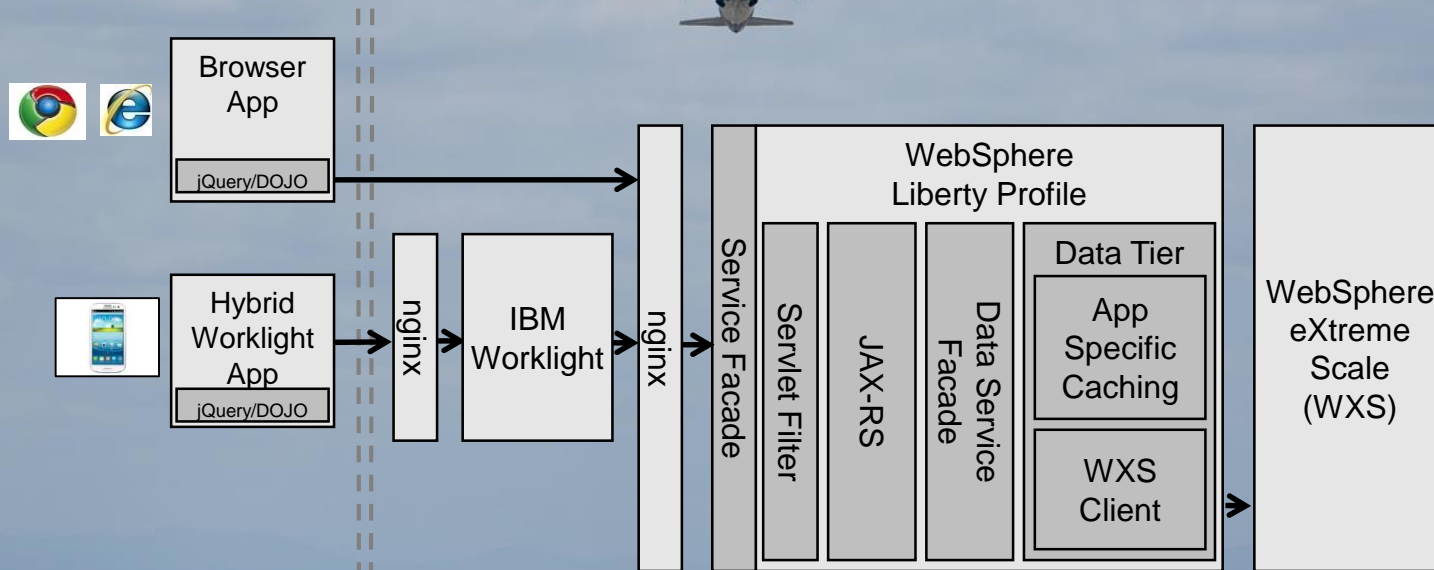




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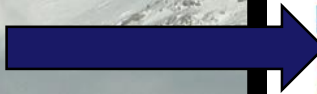
<http://bit.ly/acmeairblog>



Peak Performance and Scale

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4.3 billion API calls/day

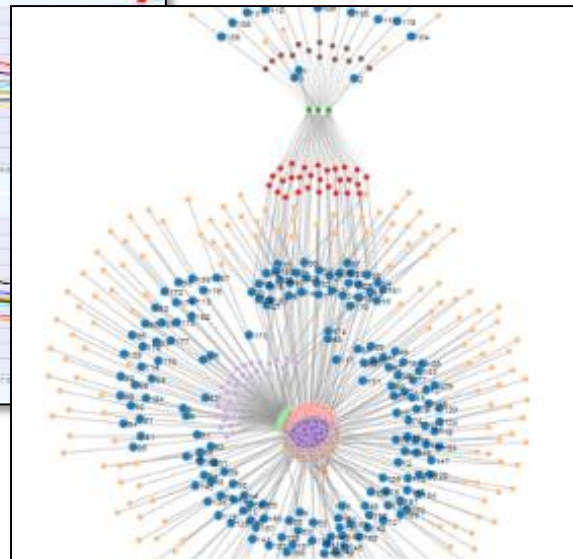
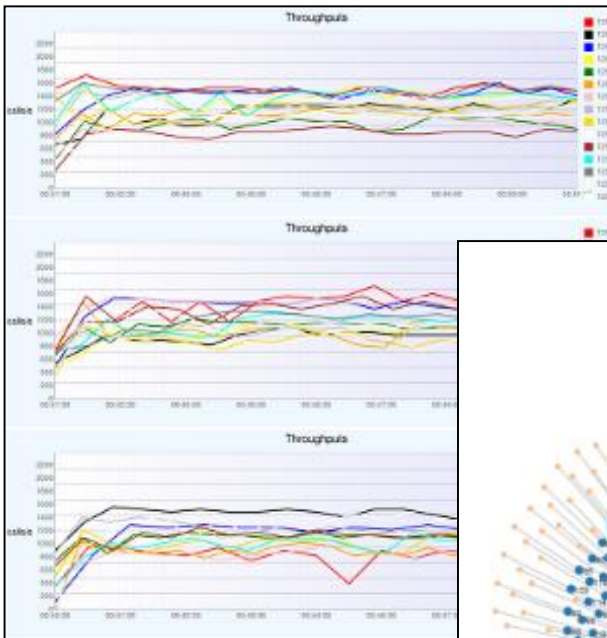


API Billionaires Club

	13 billion API calls / day <small>(May 2011)</small>
	5 billion API calls / day <small>(April 2010)</small>
	5 billion API calls / day <small>(October 2009)</small>
	1.4 billion API calls / day <small>(May 2012)</small>
	1.1 billion API calls / day <small>(April 2011)</small>
	1 billion API calls / day <small>(May 2012)</small>
	1 billion API calls / day <small>(Q1 2012)</small>
	1 billion API calls / day <small>(January 2012)</small>

programmableweb.com 2012

Operational Visibility





**DevOps
HA & DR
Elastic scaling**



<http://techblog.netflix.com>

NETFLIX

The Netflix Tech Blog

Wednesday, September 10, 2014

Links

Introducing

Chaos Monkey
[Netflix Simian Army](#)
devices, many

NETFLIX | OSS Netflix Open Source Software Center

Repositories

Powered By NetflixOSS

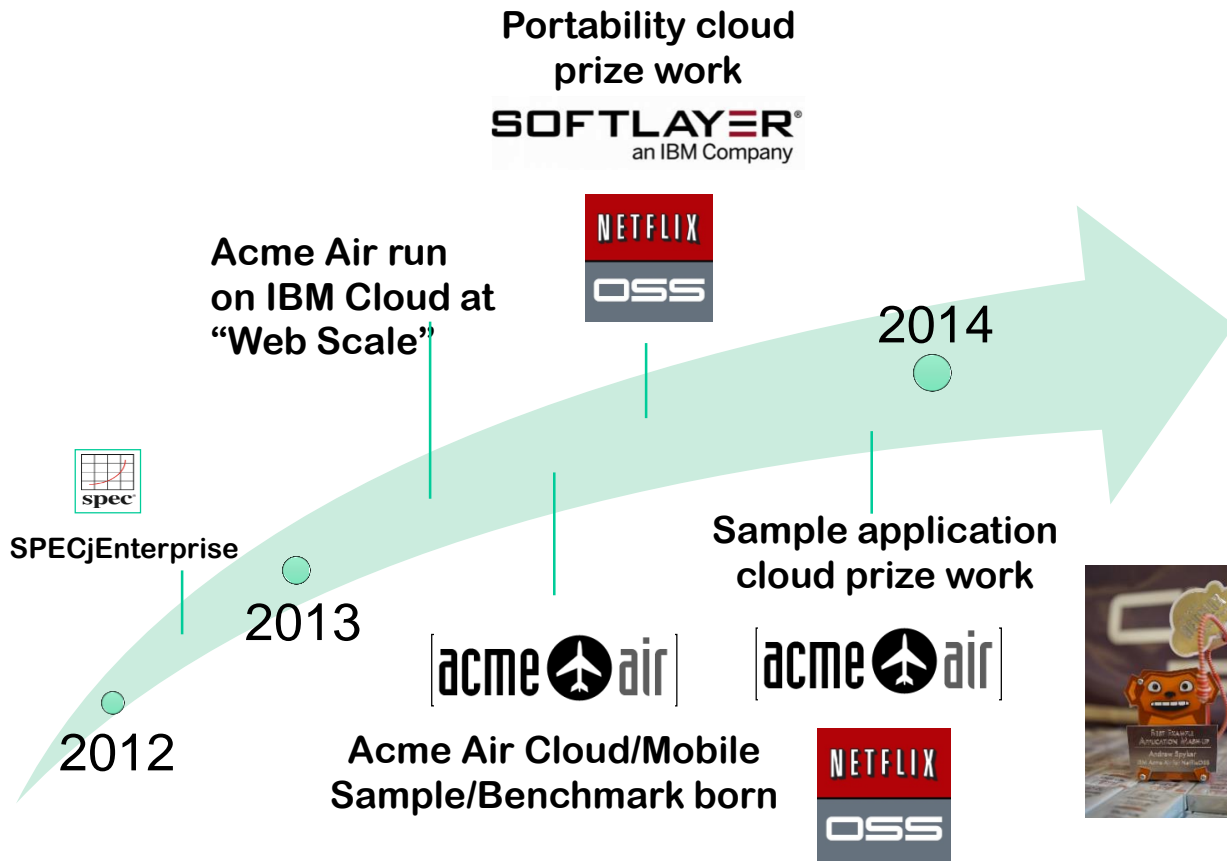


Getting Started

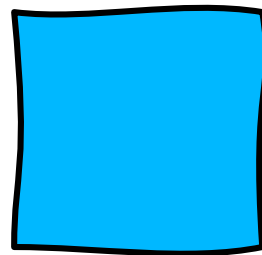
Welcome to the Netflix Open Source Software Center. To begin, we recommend working with our **RSS Reader application**. See [this walkthrough](#) on Answers For AWS to get up and running quickly.

After you've tackled that, check out the **IBM ACME Air** and **Flux Capacitor** projects and the [Team to Cloud](#) workshop.

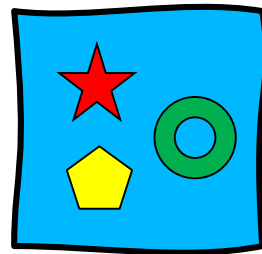
<http://netflix.github.io>



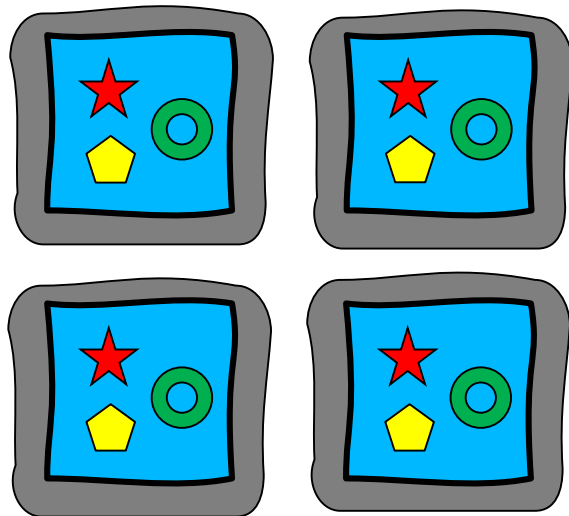
Monolithic Application



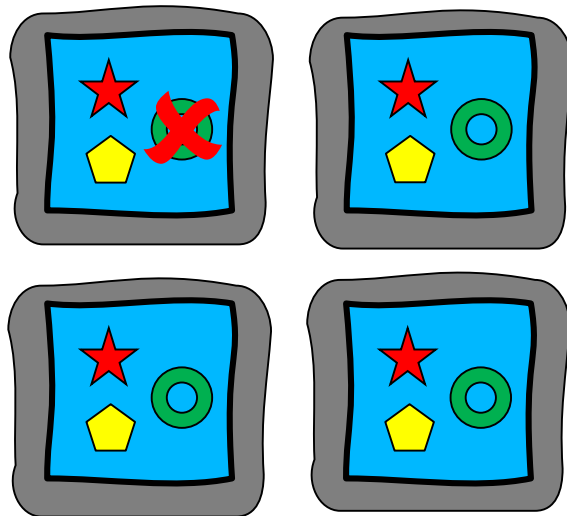
Monolithic Application Modularity



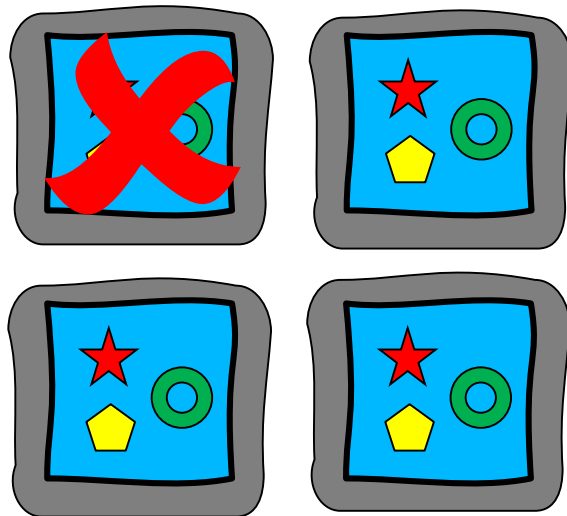
Monolithic Application Scaling



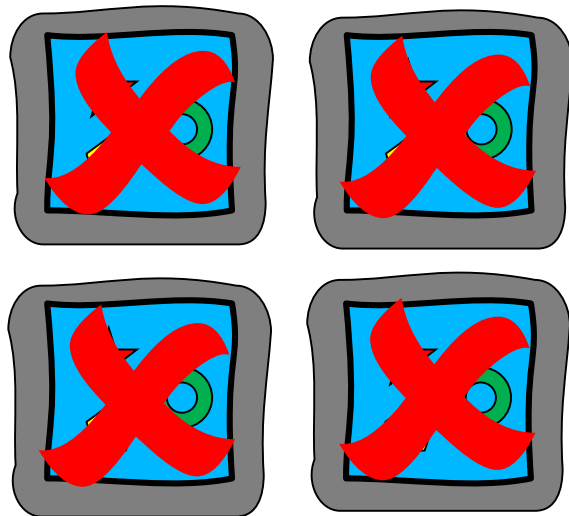
Monolithic Application Failing



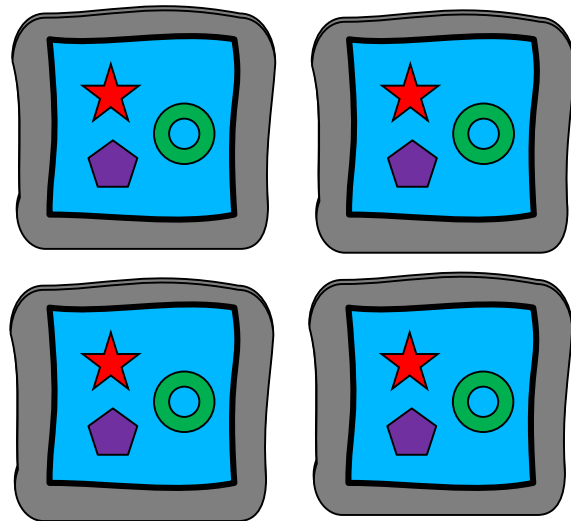
Monolithic Application Failing



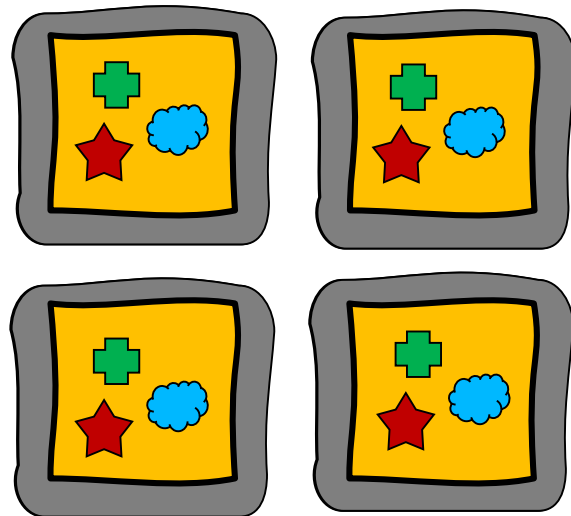
Monolithic Application Failed



Monolithic Application Update



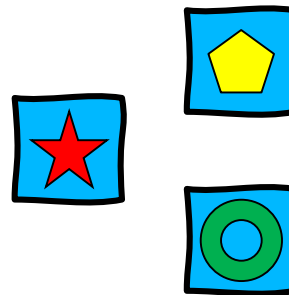
Monolithic Application Revolution



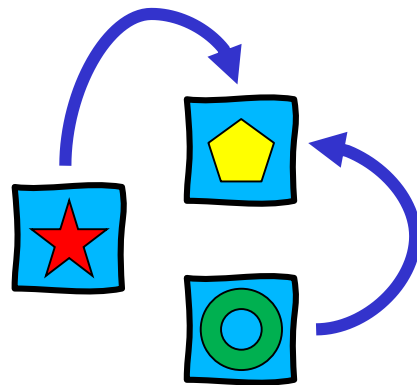
Monolithic Application Develop



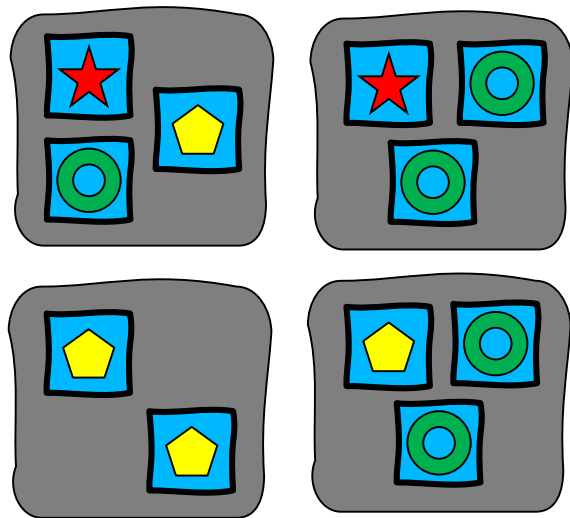
Microservices Application



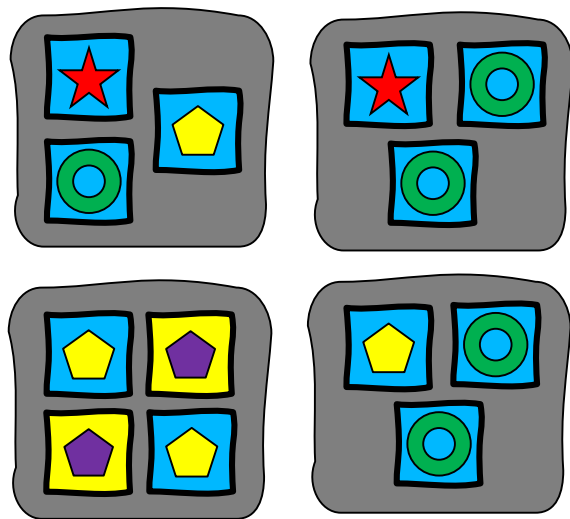
Microservices Application Interactions



Microservices Application Scaled



Microservices Application Evolution



A magnifying glass with a black handle and a silver frame is positioned over the text. The lens is centered on the words "Service Discovery" and "Eureka".

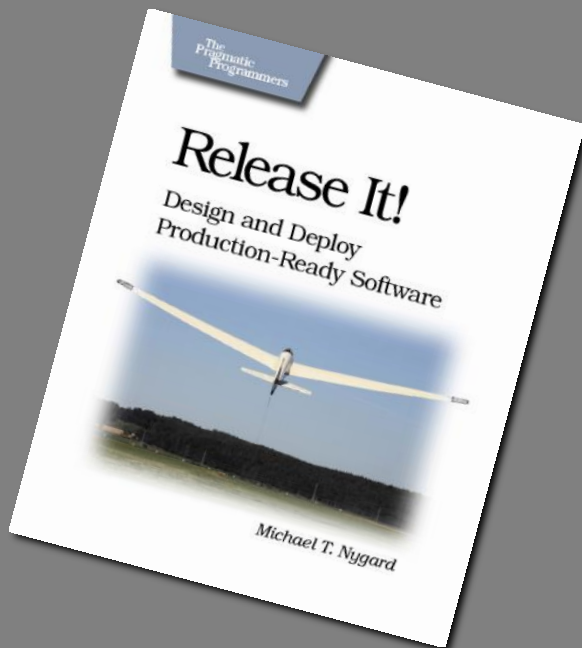
**Service
Discovery**
Eureka

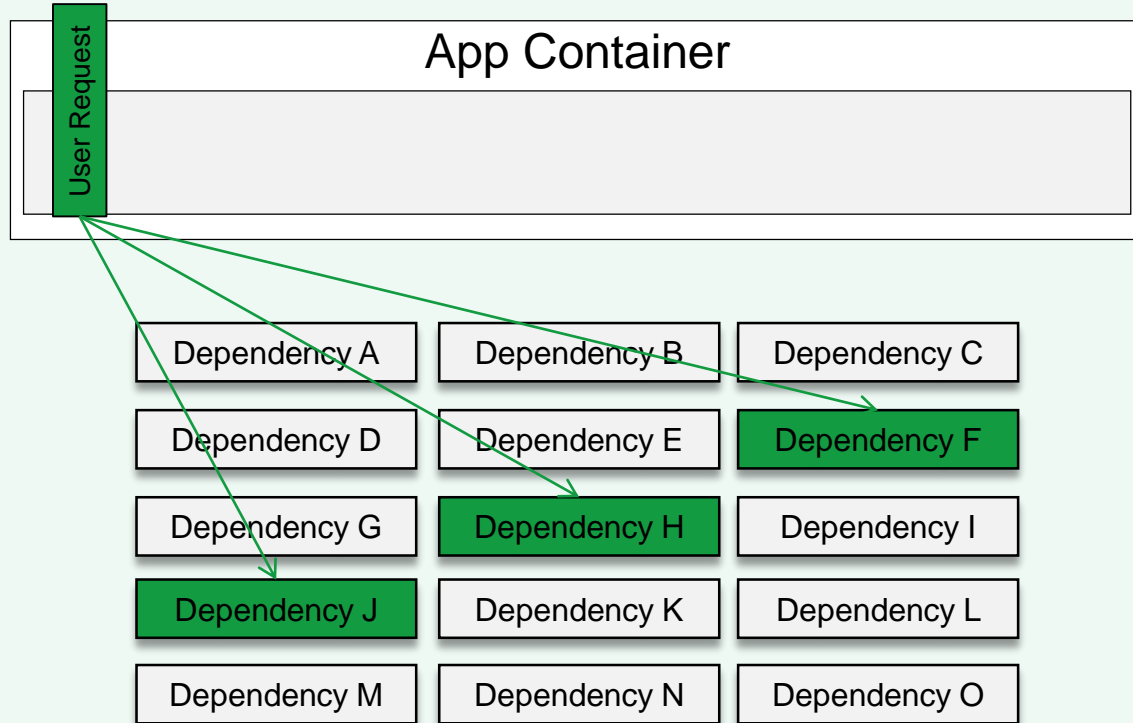


Service Invocation Ribbon

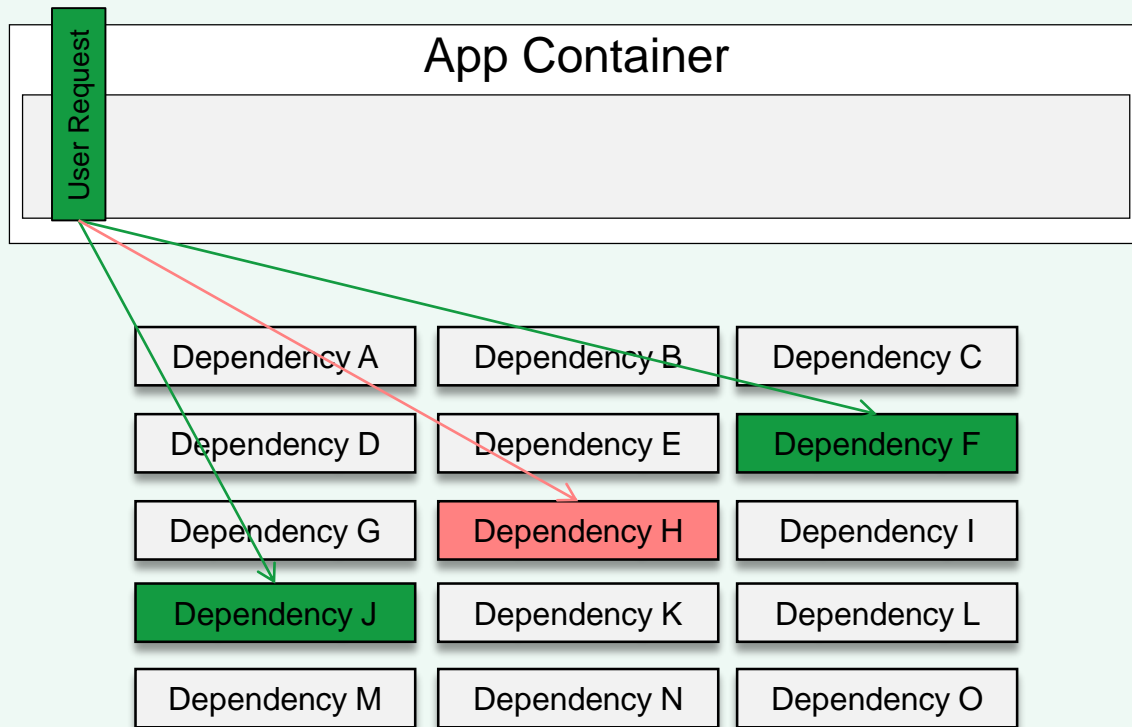
“Hope is not a
design method.”

Michael Nygard, Release It!

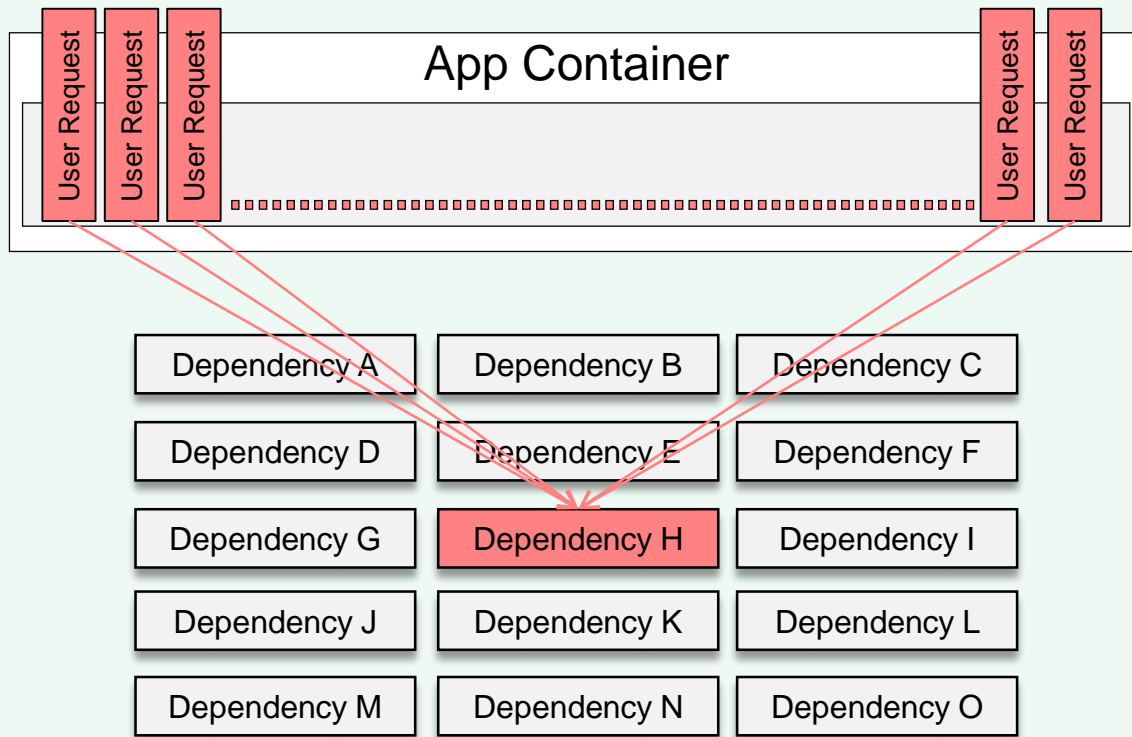




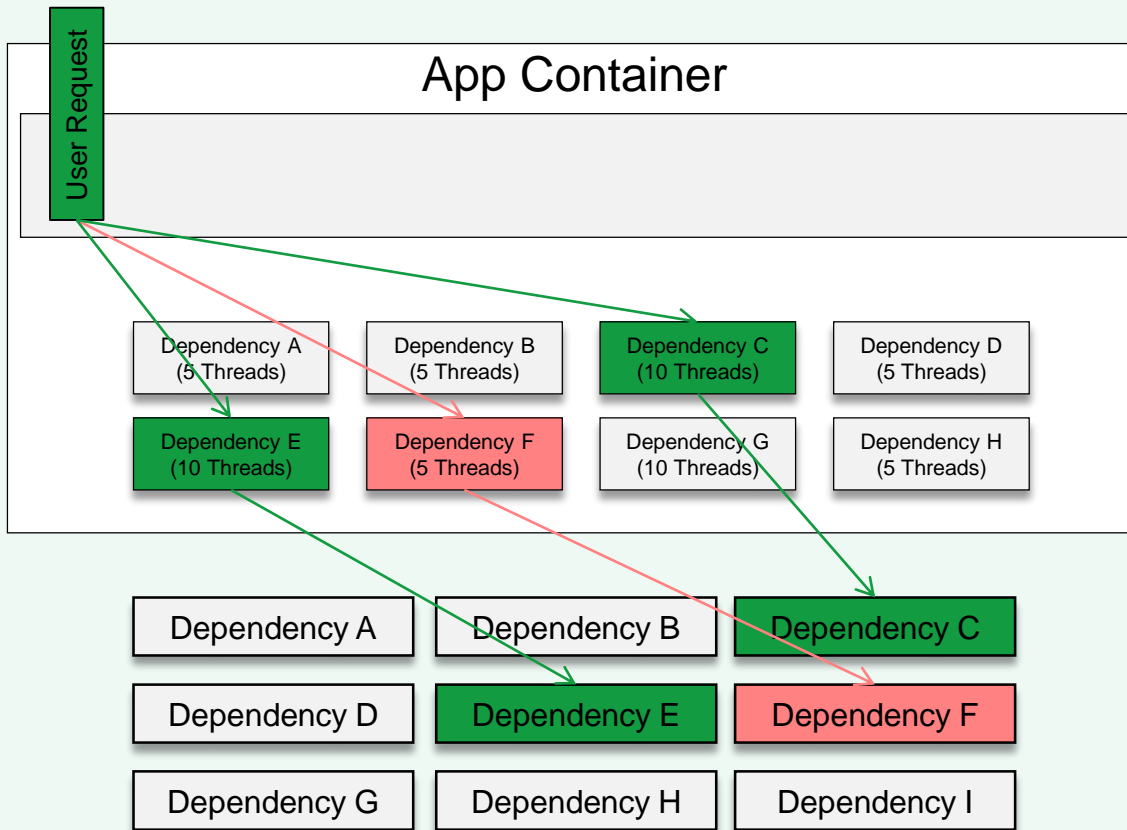
FAILURE!

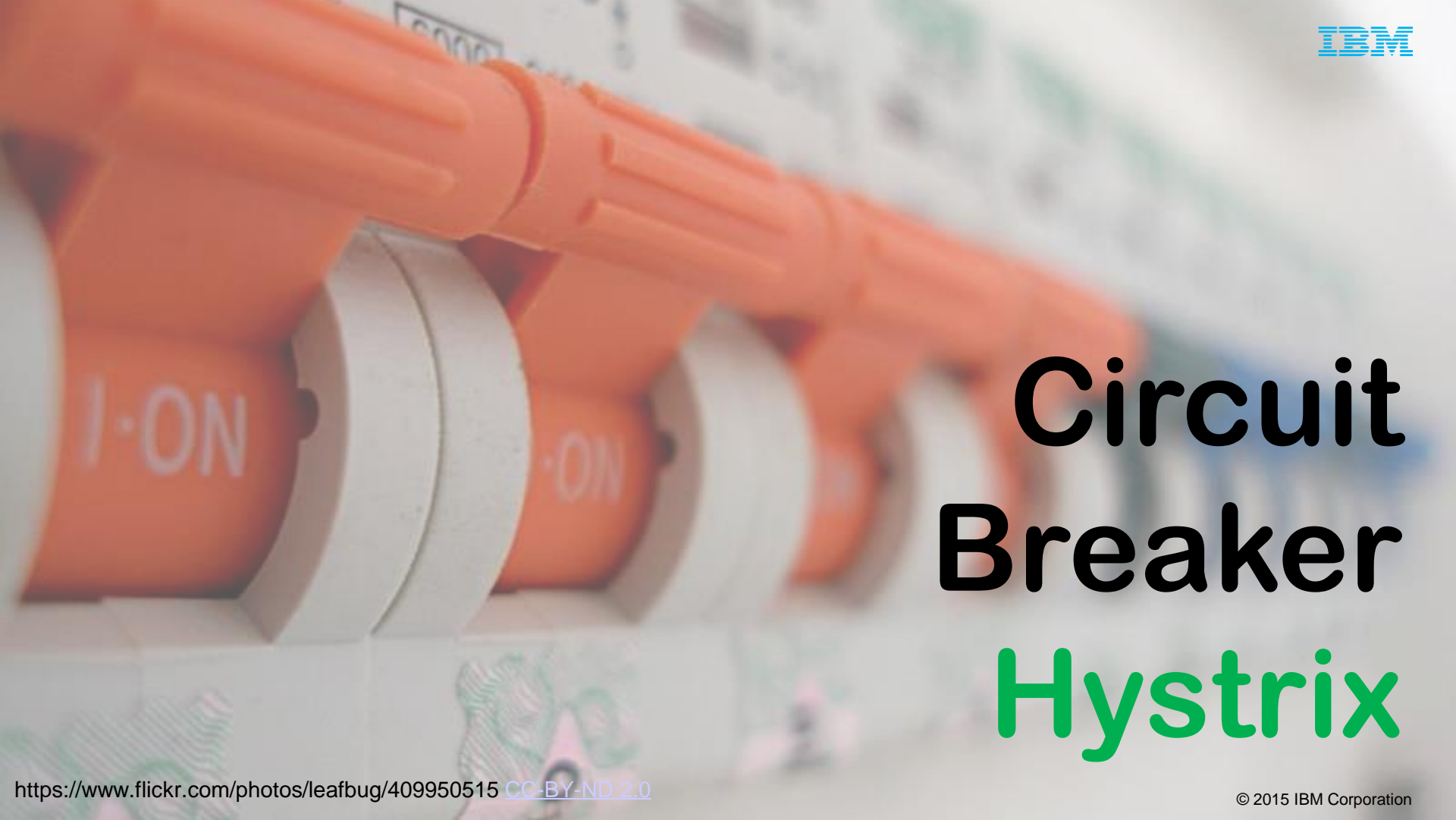


THREAD STARVATION!



FAIL FAST



The background of the slide is a close-up, shallow depth-of-field photograph of a row of orange circuit breakers. The breakers are mounted on a white panel. The text '1-ON' is visible on the side of the breakers. The lighting is bright, and the focus is sharp on the breakers in the foreground, with the background being blurred.

Circuit Breaker Hystrix

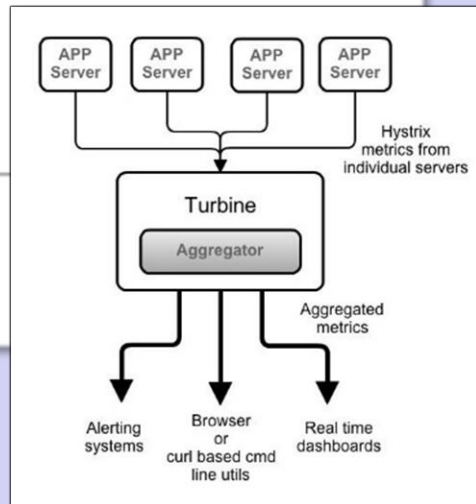
Hystrix Stream: Acme Air Web App Cluster



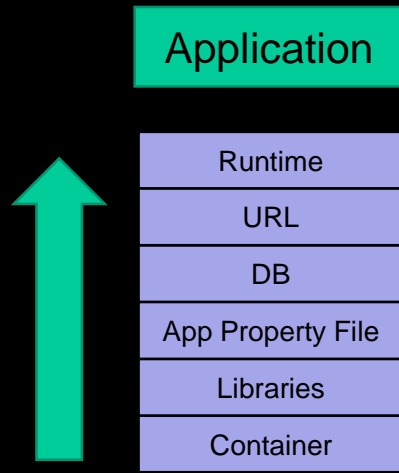
Circuit Sort: [Error then Volume](#) | [Alphabetical](#) | [Volume](#) | [Error](#) | [Mean](#) | [Median](#) | [90](#) | [99](#) | [99.5](#) [Success](#) | [Short-Circuited](#) | [Timeout](#) | [Rejected](#) | [Failure](#) | [Error %](#)



Thread Pools Sort: [Alphabetical](#) | [Volume](#) |



```
DynamicLongProperty timeToWait =  
    DynamicPropertyFactory.getInstance().  
        getLongProperty("mywebapp.lock.waitTime", 1000);  
timeToWait.get();
```



Dynamic Configuration Archaius



Small download

Low memory usage

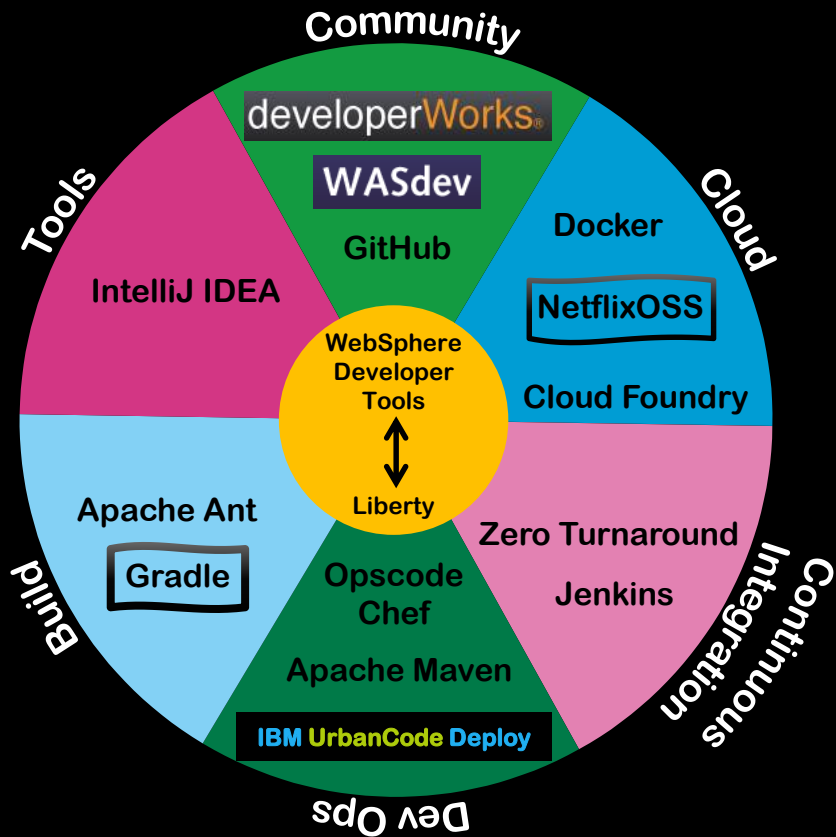
Simple configuration

Fast start up

Easy access

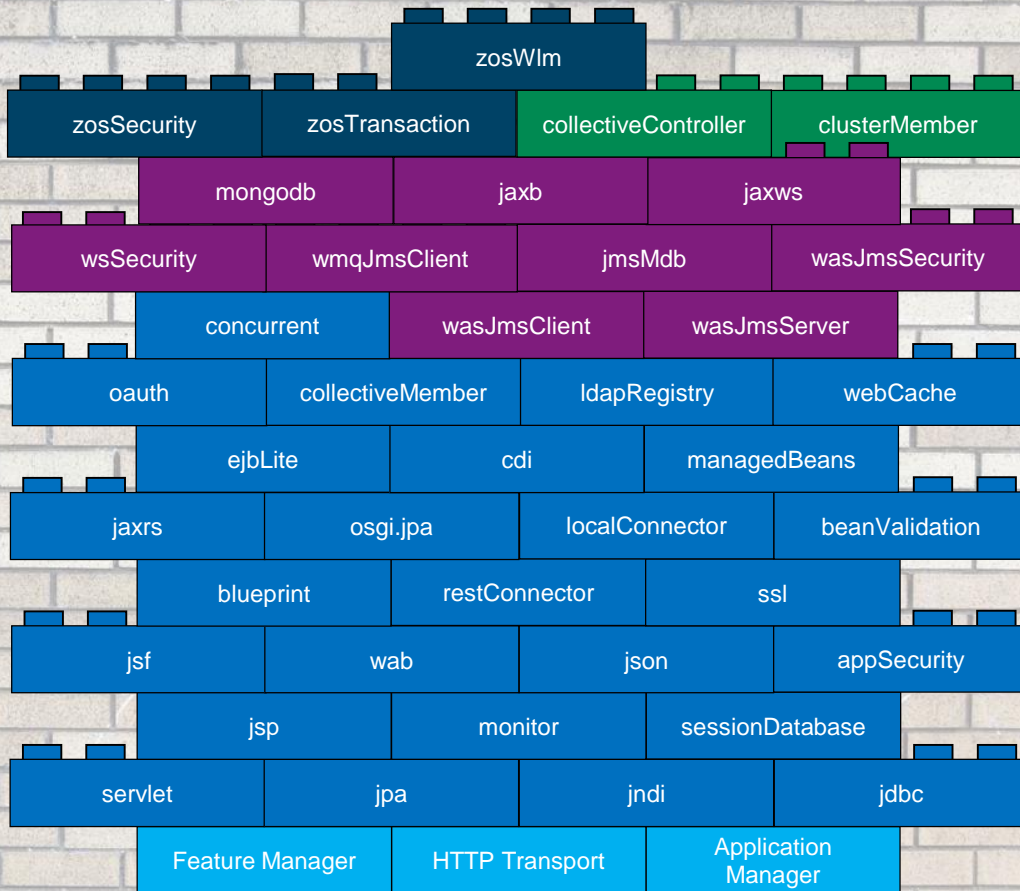
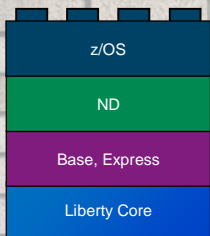
Free tooling

<http://wasdev.net>



<http://wasdev.net>

<http://wasdev.github.io>



Liberty Features

<https://github.com/WASdev/sample.netflixoss.wlp>

```
dcurrie@shotover /d/libertydemo (master)
$ cat > gradle.properties
wlpDir=d:/libertydemo/wlp
dcurrie@shotover /d/libertydemo (master)
$ gradlew build
```

BUILD SUCCESSFUL

```
Total time: 1 mins 4.741 secs
dcurrie@shotover /d/libertydemo (master)
$ ls -s ws-noss/build/libs/ws-netflix-oss_1.0.0.esa
5727 ws-noss/build/libs/ws-netflix-oss_1.0.0.esa
```

```
dcurrie@shotover /d/libertydemo/wlp (master)  
$ featureManager install netflixoss.wlp_1.0.0.esa
```

server.xml

```
<featureManager>  
  <feature>jsp-2.2</feature>  
  <feature>usr:netflixoss.wlp</feature>  
</featureManager>
```

```
DynamicLongProperty timeToWait =  
    DynamicPropertyFactory.getInstance().  
        getLongProperty("mywebapp.lock.waitTime", 1000);  
timeToWait.get();
```

server.xml

```
<archaius>  
  <mywebapp><lock><waitTime>500</waitTime></lock></mywebapp>  
</archaius>
```



```
public class MyCommand extends HystrixCommand<String> {  
    protected String run() { // remote call }  
    protected String getFallback() { // local fallback }  
}  
String result = new MyCommand().execute();
```

server.xml

```
<hystrix>  
  <command><MyCommand>  
    <execution><isolation><thread>  
      <timeoutInMilliseconds>10000</timeoutInMilliseconds>  
    </thread></isolation></execution>  
  </MyCommand></command>  
</hystrix>
```



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Builds on a polyglot Platform-as-a-Service



CLOUD FOUNDRY™

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Community



PHP
Community



Python
Community



Ruby on Rails
Community



Ruby Sinatra
Community



Bring Your Buildpack
Community



IBM Bluemix

IBM,
Third Party
and Community
Services

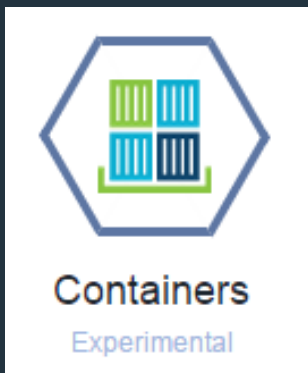




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docker



Private registry + Hosted Docker runtime

DEMO



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Business mentoring

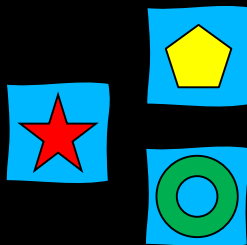
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Technical expertise





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