

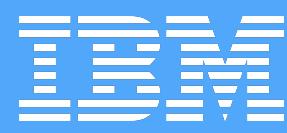
DESTINATION CLOUD

DEPLOYING APPLICATIONS TO THE CLOUD WITH DOCKER

Ryan Baxter - @ryanjbaxter - 02.17.16

IBM Bluemix™
www.bluemix.net





RYAN
BAXTER
**DEVELOPER
ADVOCATE**



BOSTON, MA
@ryanjbaxter
<http://ryanjbaxter.com>

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DEPLOYMENT
CYCLES
ARE GETTING
FASTER



CONTINUOUS
DELIVERY
IS AWE-
SOME

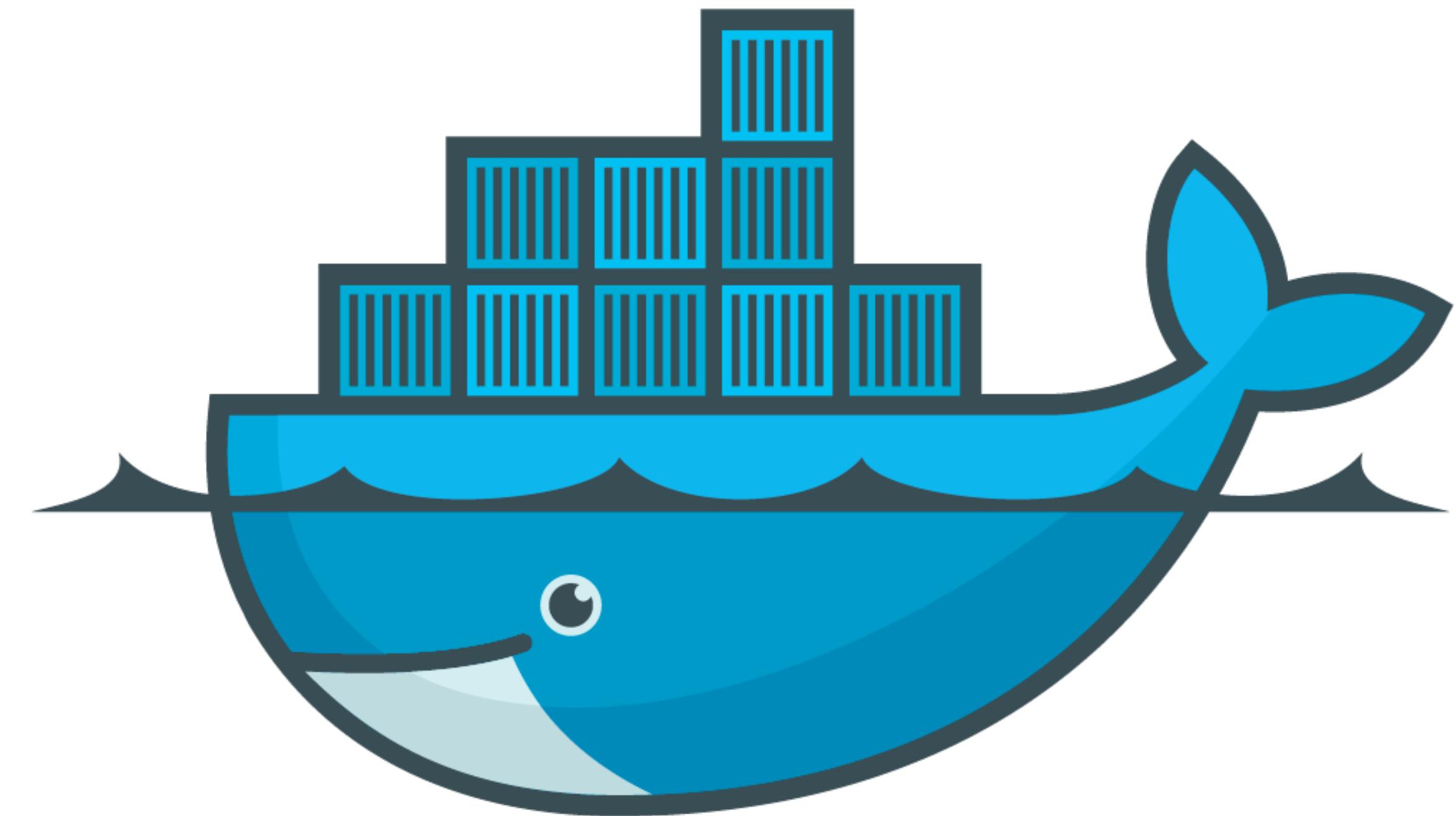


DEVELOPMENT
TESTING
STAGING
PRODUCTION
CLOUD



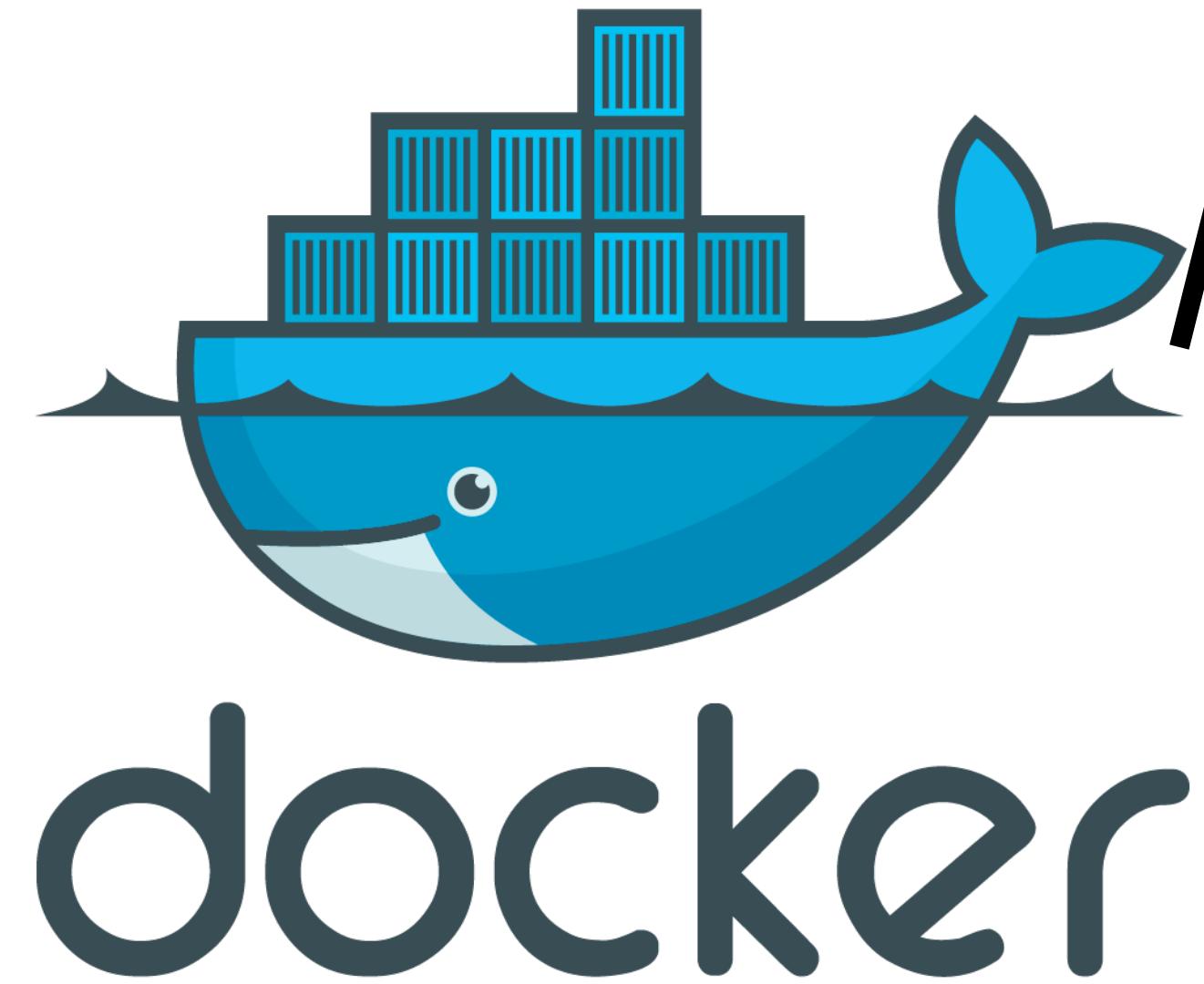
“...it works for me.”





docker





OPEN SOURCE

RUNS ON LINUX

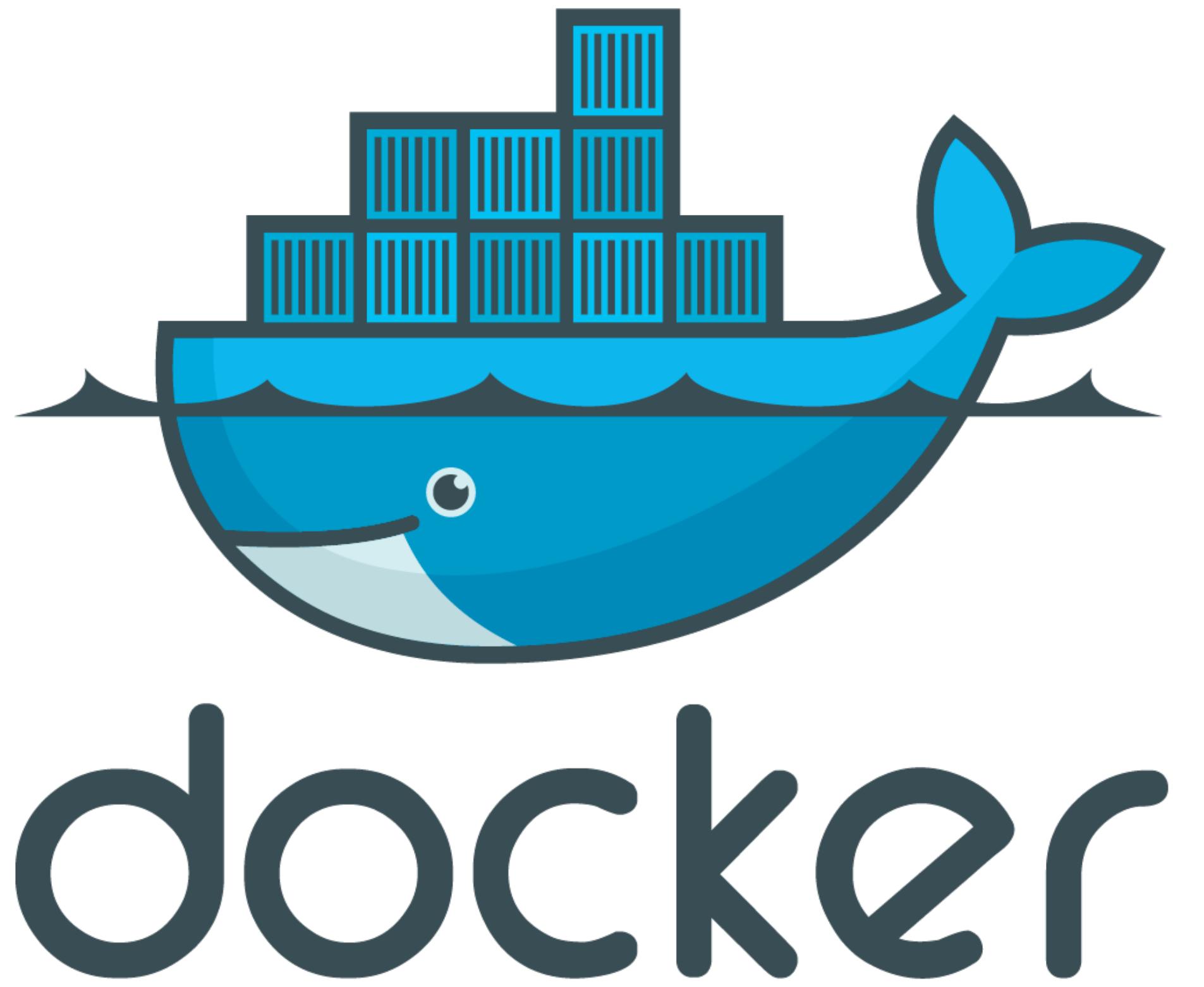
VERSIONING

REGISTRIES

DOCKER HUB

WRITE ONCE
RUN EVERYWHERE

LIGHT WEIGHT



+





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The Digital Innovation Platform

BUILD

EXTEND

SCALE

INTEGRATE

FEATURED

Build your apps, your way.

Use a combination of the most prominent open-source compute technologies to power your apps. Then, let Bluemix handle the rest.

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Portable and consistent delivery of your app without having to manage an OS.



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Runtimes

Run an app in the language of your choice



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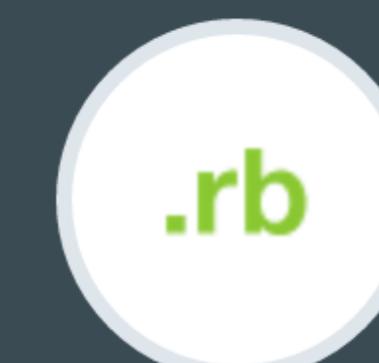
SDK for Node.js™
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Community



Python
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Ruby
Community



Community buildpacks
Community

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bluechatter
My Org



Add your own
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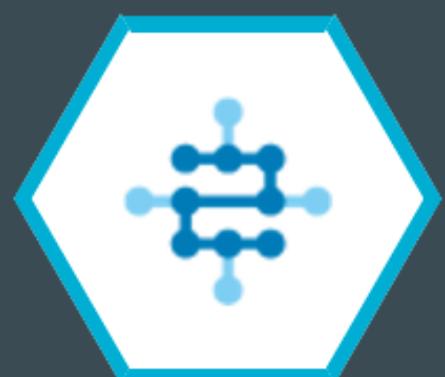
DataWorks
IBM



Elasticsearch by
Compose
IBM



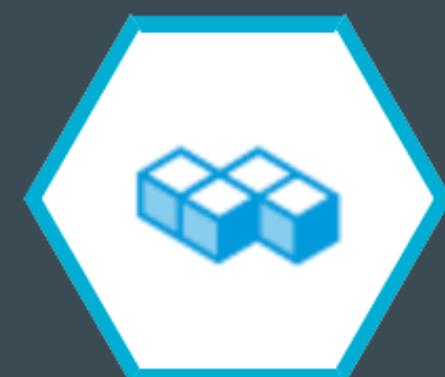
Geospatial Analytics
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IBM DB2 on Cloud
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Insights for Twitter
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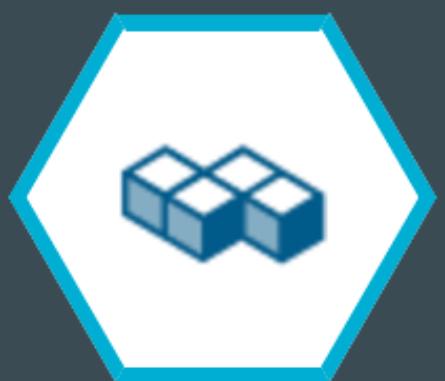
MongoDB by Compose
IBM



Object Storage
IBM BETA



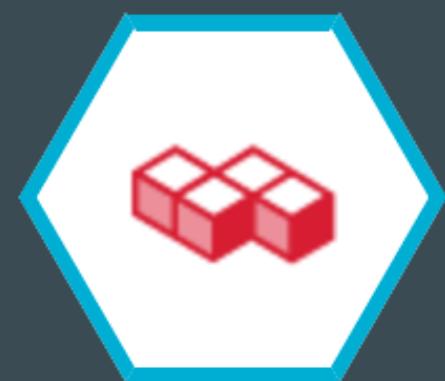
Object Storage (v2)
IBM BETA



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IBM



Predictive Analytics
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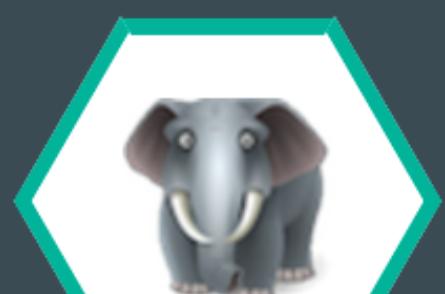
Redis by Compose
IBM

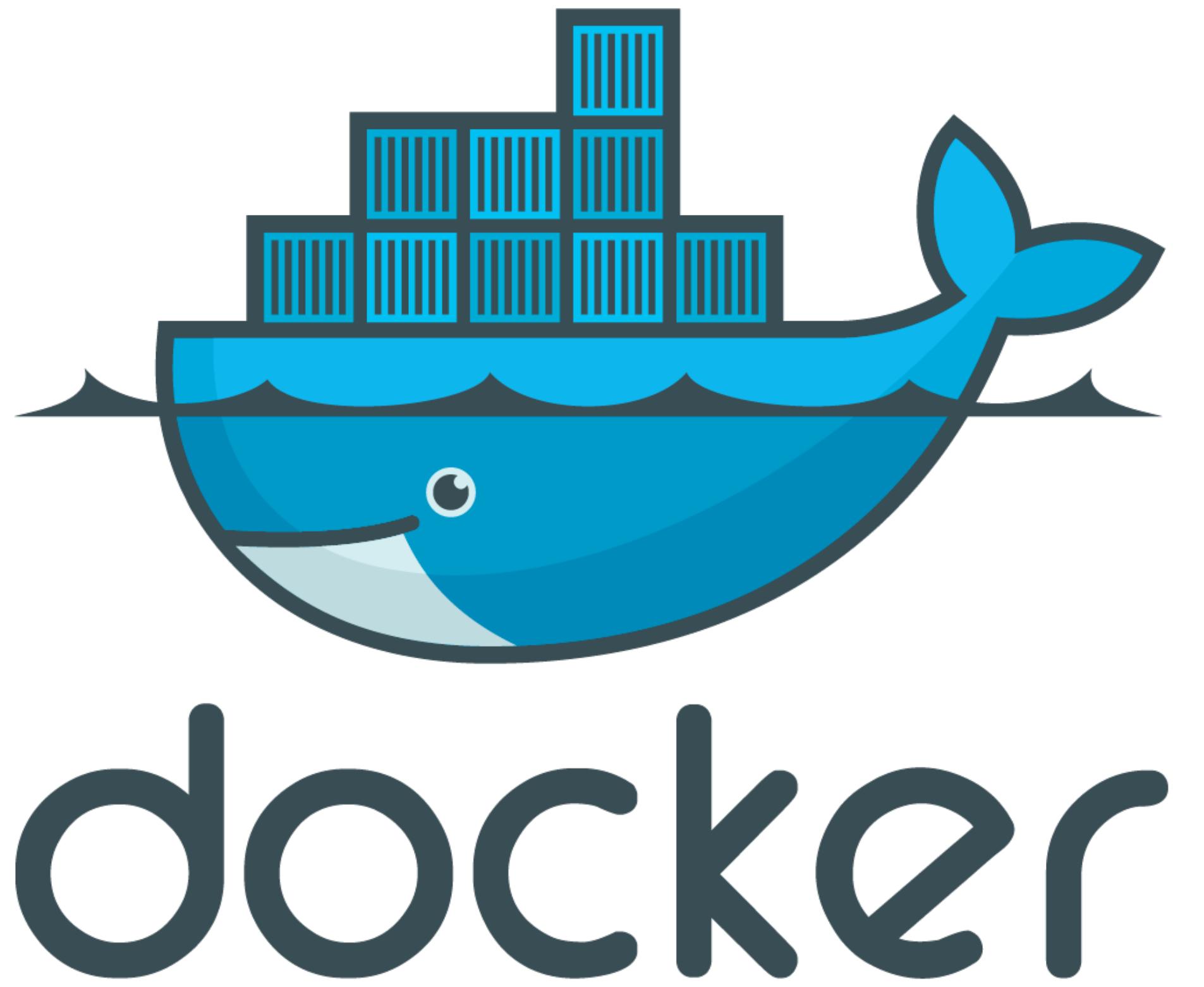


SQL Database
IBM



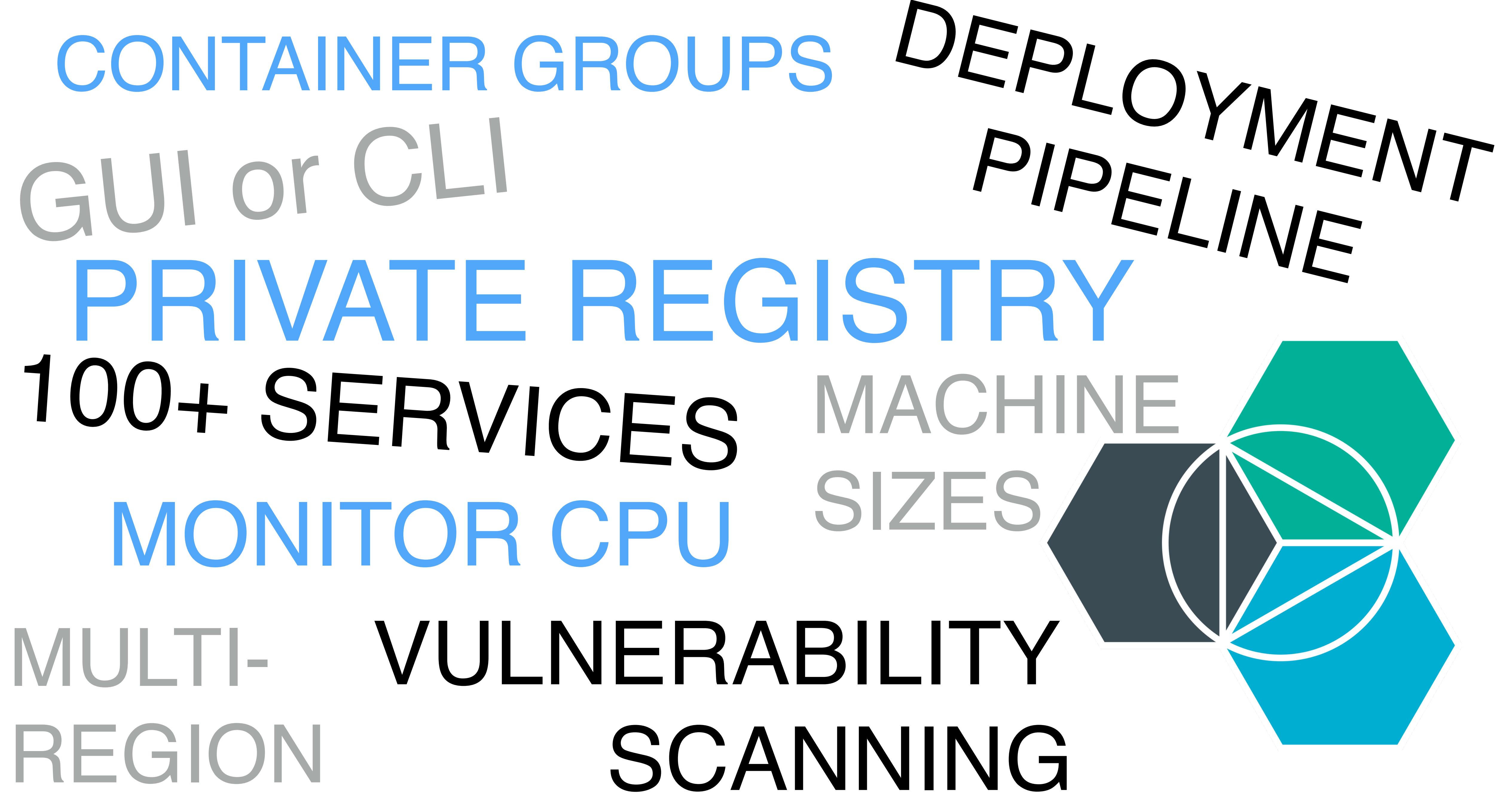
Streaming Analytics
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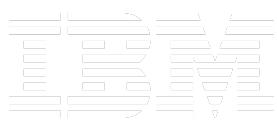
+





THE APP





BlueChatter

kauffecup

why hello there

jon

how goes it

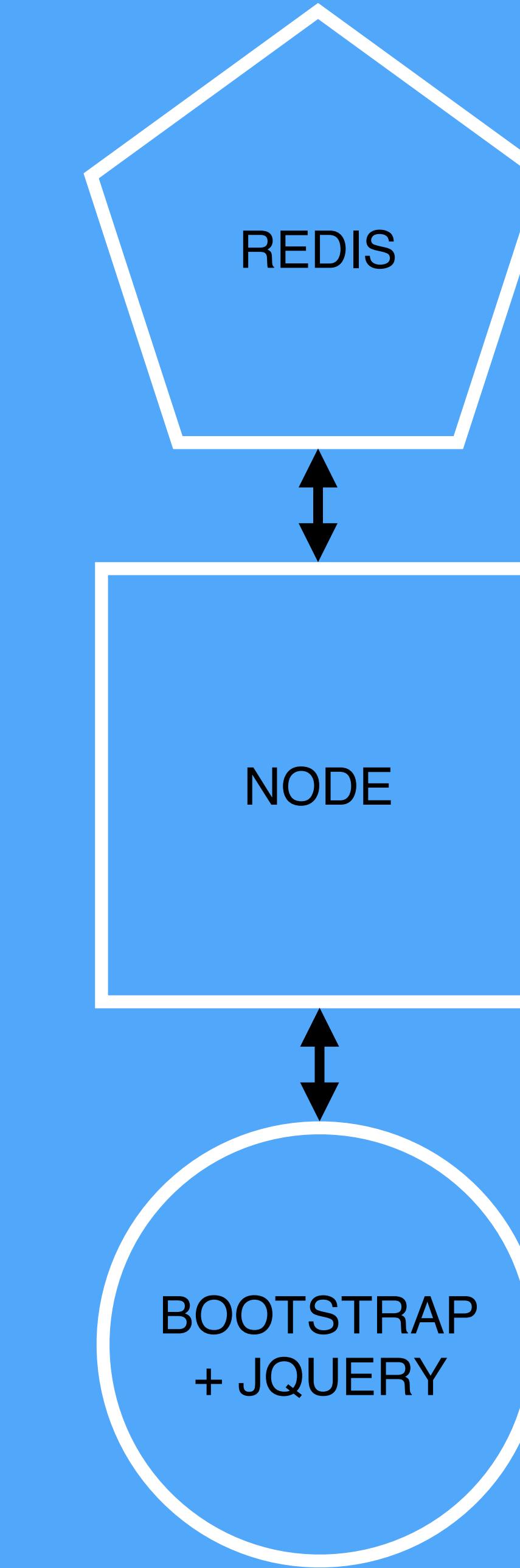
Type something insightful!

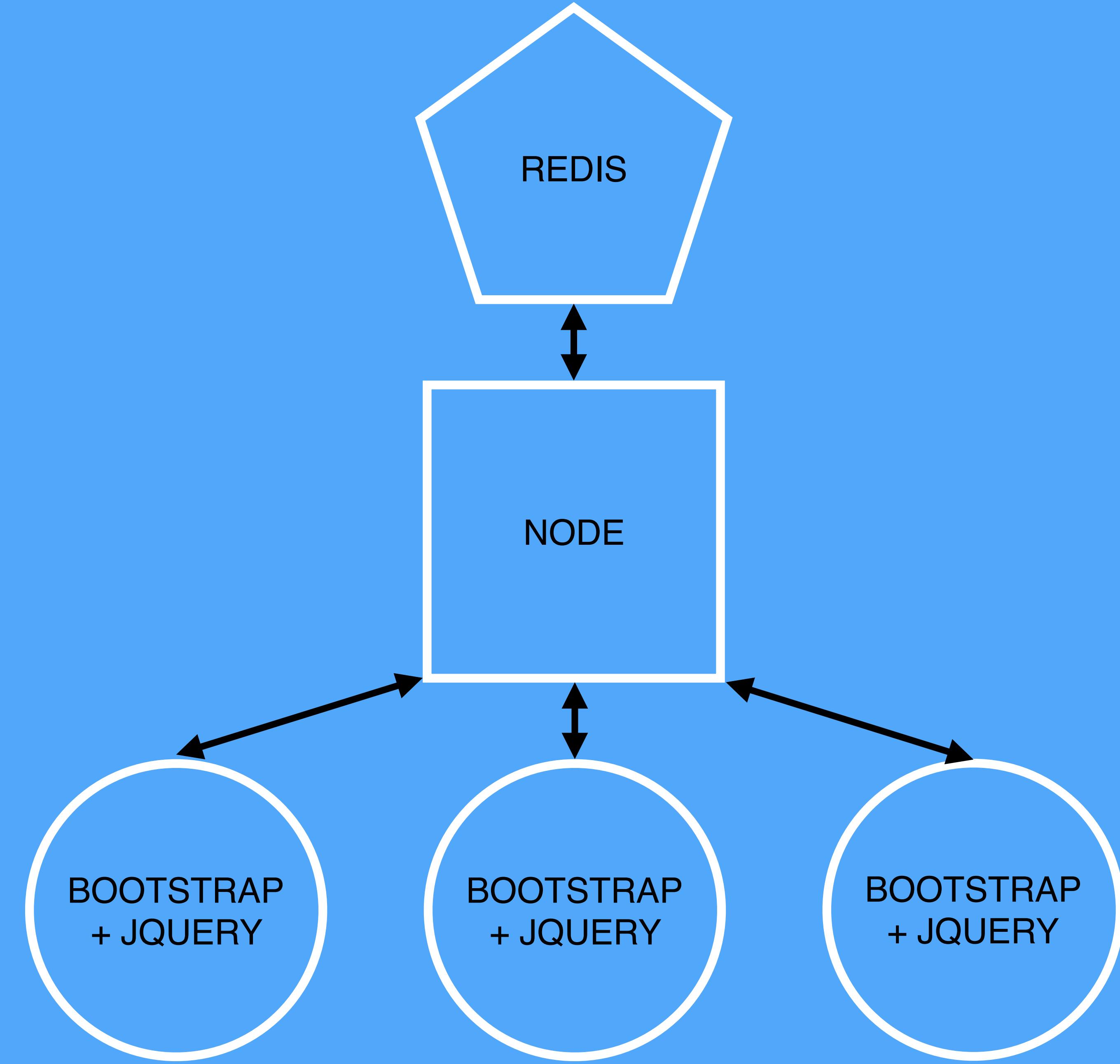
Built By The BlueMix Dev Advocate Team

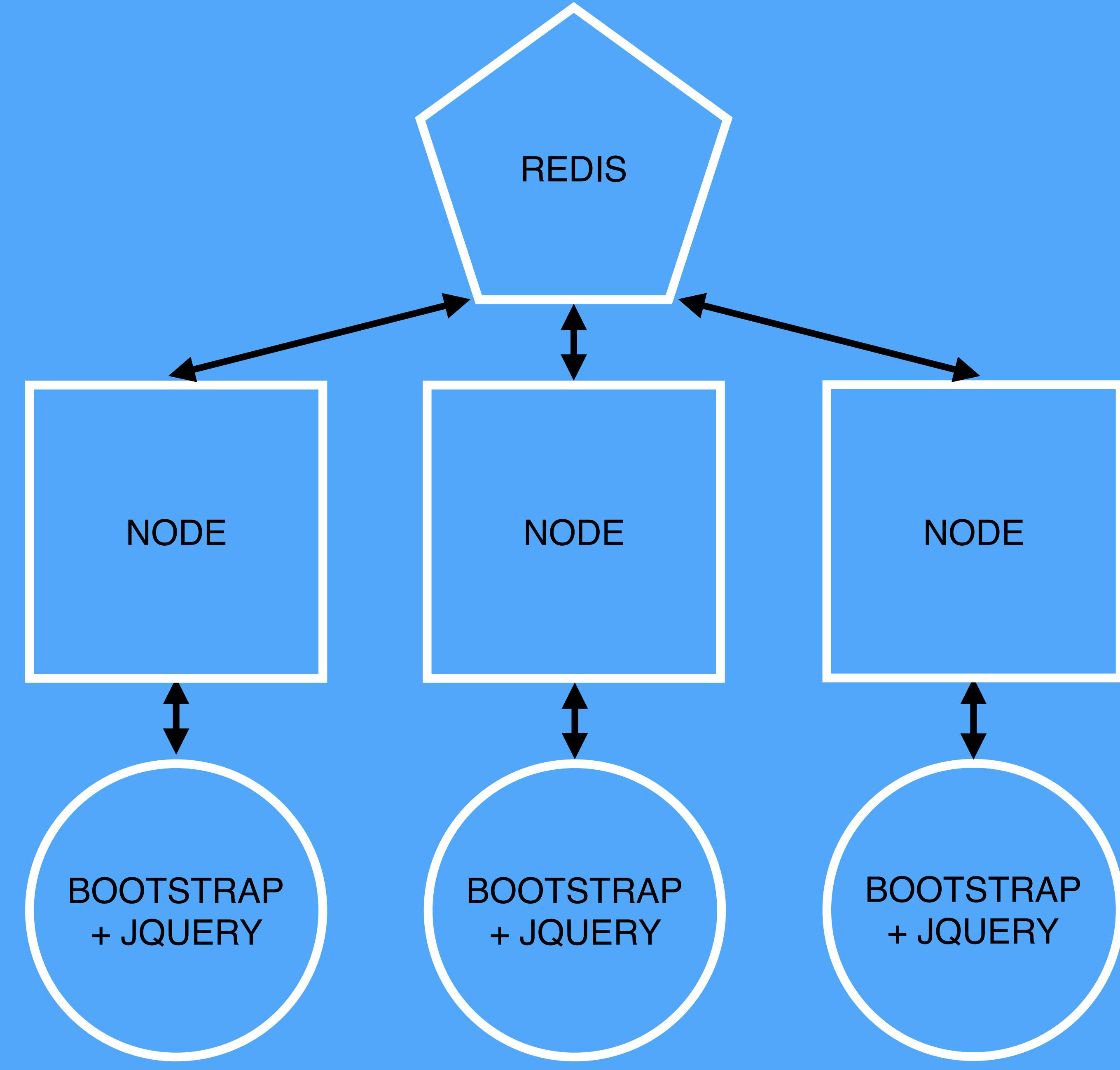


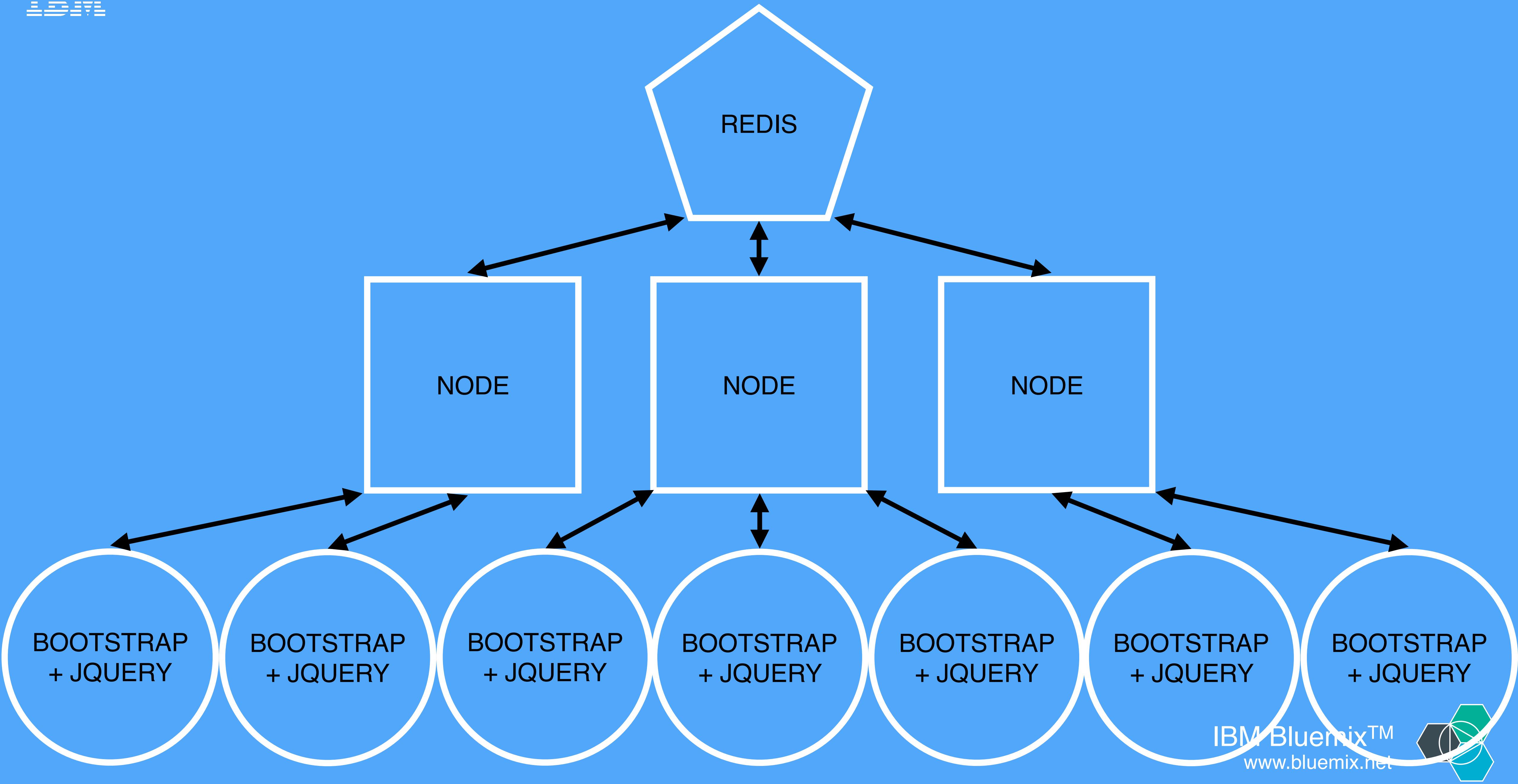
[https://github.com/IBM-Bluemix/
bluechatter](https://github.com/IBM-Bluemix/bluechatter)

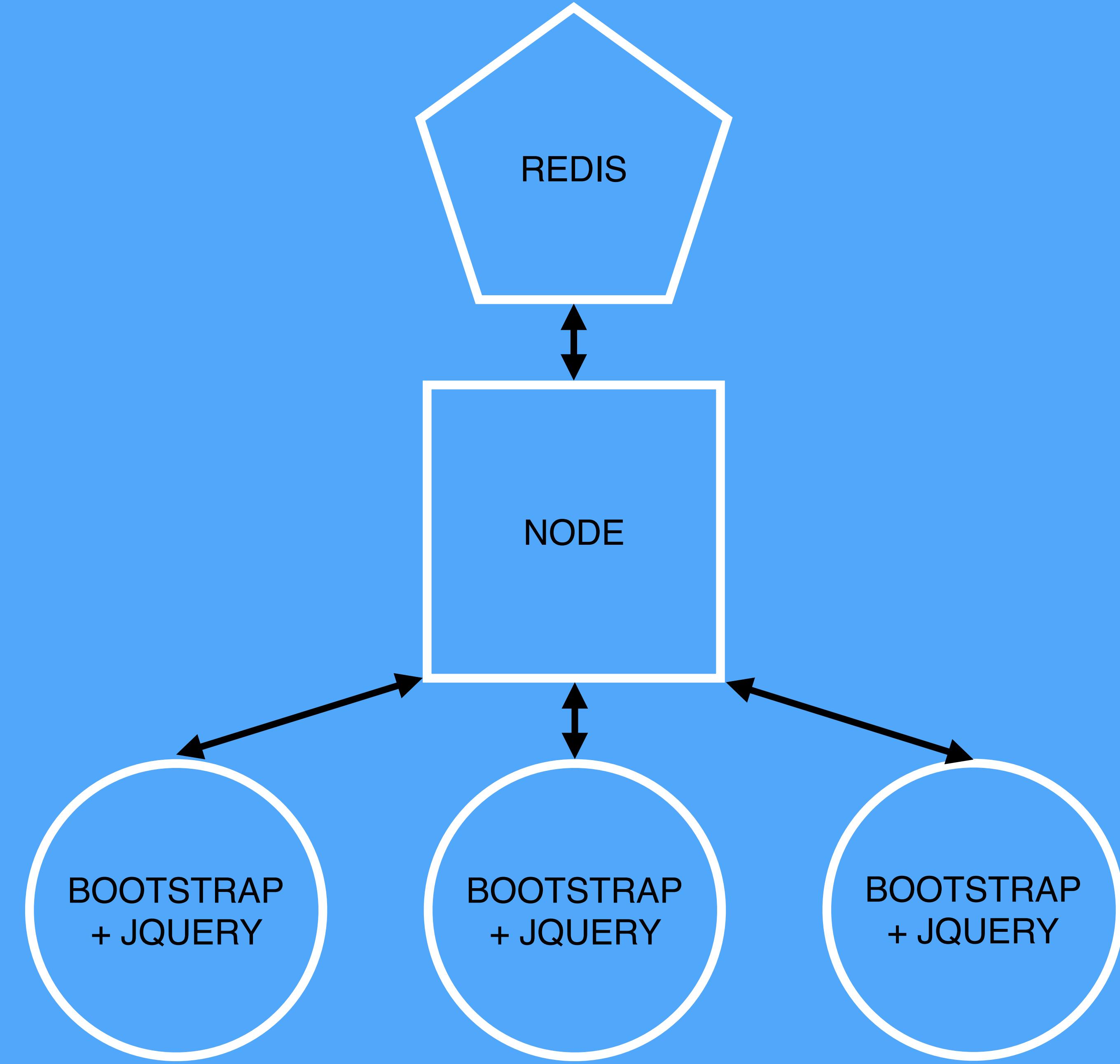


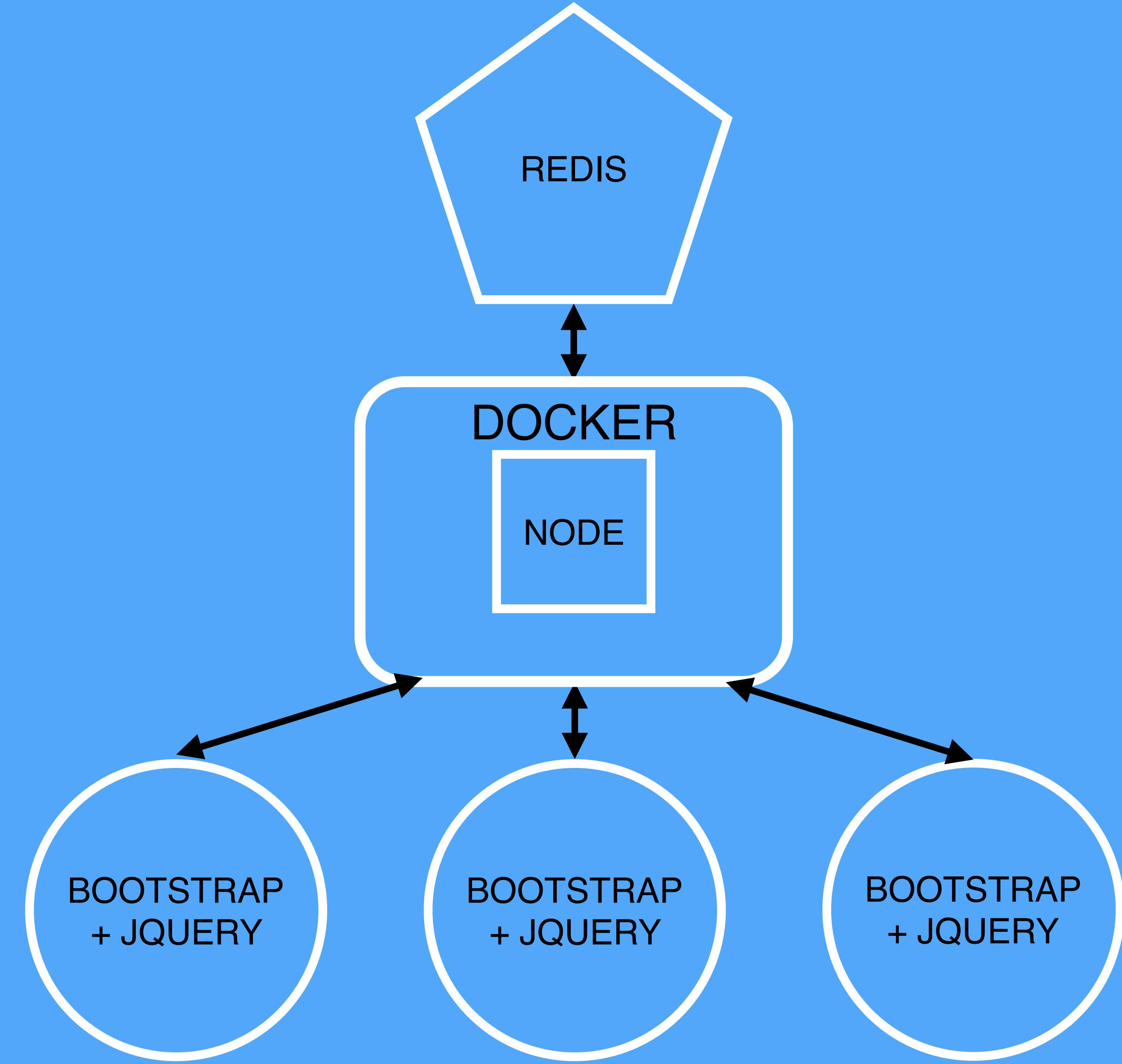


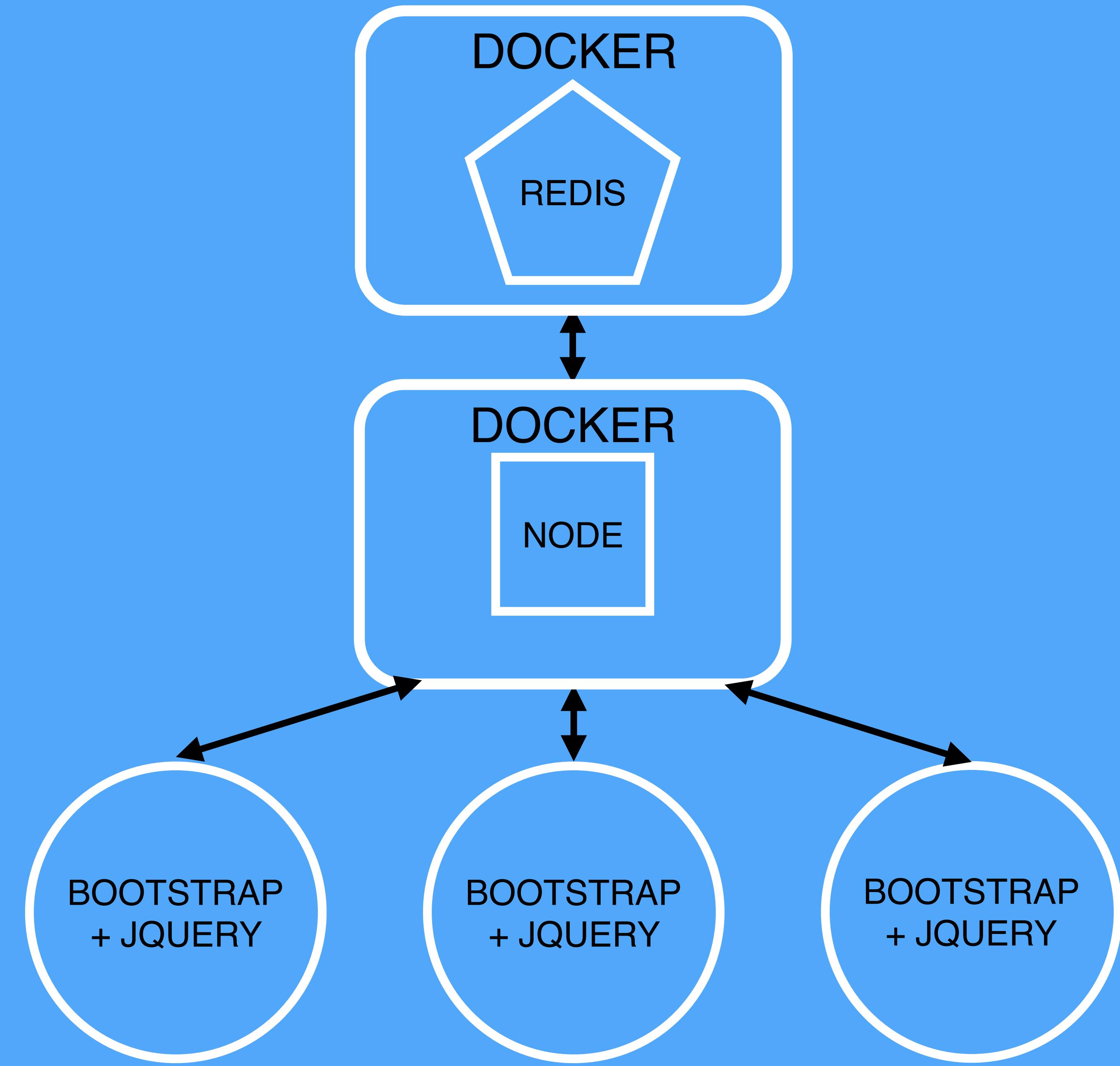












BOILERPLATE

```
var redisService = appEnv.getService('redis-chatter');
var credentials;
if (!redisService || redisService == null) {
  if (isDocker) {
    credentials = {"hostname": "redis", "port": 6379};
  } else {
    credentials = {"hostname": "127.0.0.1", "port": 6379};
  }
} else {
  if (isDocker) {
    // This works around a problem with networking when deployed to Bluemix in a docker container
    // For some reason it takes about 30 seconds for the networking to come up on the container
    // so we sleep here before we continue on and use these credentials to connect
    console.log('The app is running in a Docker container on Bluemix so we are ' +
      'sleeping for 90 seconds waiting for the networking to become active.');
    require('sleep').sleep(90);
  }
  credentials = redisService.credentials;
}
```



FILE STRUCTURE

bluechatter

- | --node_modules
- | --public
- | --app.js
- | --admin.js
- | --docker-compose.yml
- | --Dockerfile
- | --package.json



RUNNING LOCALLY



STEP 1: GET THE CODE



```
→ Workspace git clone https://github.com/IBM-Bluemix/bluechatter.git
Cloning into 'bluechatter'...
remote: Counting objects: 101, done.
remote: Total 101 (delta 0), reused 0 (delta 0), pack-reused 101
Receiving objects: 100% (101/101), 29.25 KiB | 0 bytes/s, done.
Resolving deltas: 100% (52/52), done.
Checking connectivity... done.
→ Workspace cd bluechatter
→ bluechatter git:(master)
```

WITHOUT DOCKER



NODE + REDIS

1. Install dependencies
2. Kick off Redis server
3. Start Node app



```
→ bluechatter git:(master) npm install
```

```
npm WARN package.json BlueChatter@0.0.1 No license field.
```

```
> sleep@3.0.0 install /Users/jkaufman/Workspace/bluechatter/node_modules/sleep
```

```
> node-gyp rebuild
```

```
  CXX(target) Release/obj.target/node_sleep/sleep.o
```

```
  SOLINK_MODULE(target) Release/node_sleep.node
```

```
> BlueChatter@0.0.1 install /Users/jkaufman/Workspace/bluechatter
```

```
> node admin.js track
```

```
...
```

```
nconf@0.7.2 node_modules/nconf
```

```
  └─ ini@1.3.4
```

```
  └─ async@0.9.2
```

```
    └─ yargs@3.15.0 (decamelize@1.0.0, camelcase@1.2.1, window-size@0.1.2,  
      cliui@2.1.0)
```

➔ ~ redis-server

2609:C 15 Oct 13:03:44.119 # Warning: no config file specified, using the default config. In order to sp
2609:M 15 Oct 13:03:44.121 * Increased maximum number of open files to 10032 (it was originally set to 2



2609:M 15 Oct 13:03:44.122 # Server started, Redis version 3.0.5

2609:M 15 Oct 13:03:44.122 * DB loaded from disk: 0.000 seconds

2609:M 15 Oct 13:03:44.122 * The server is now ready to accept connections on port 6379

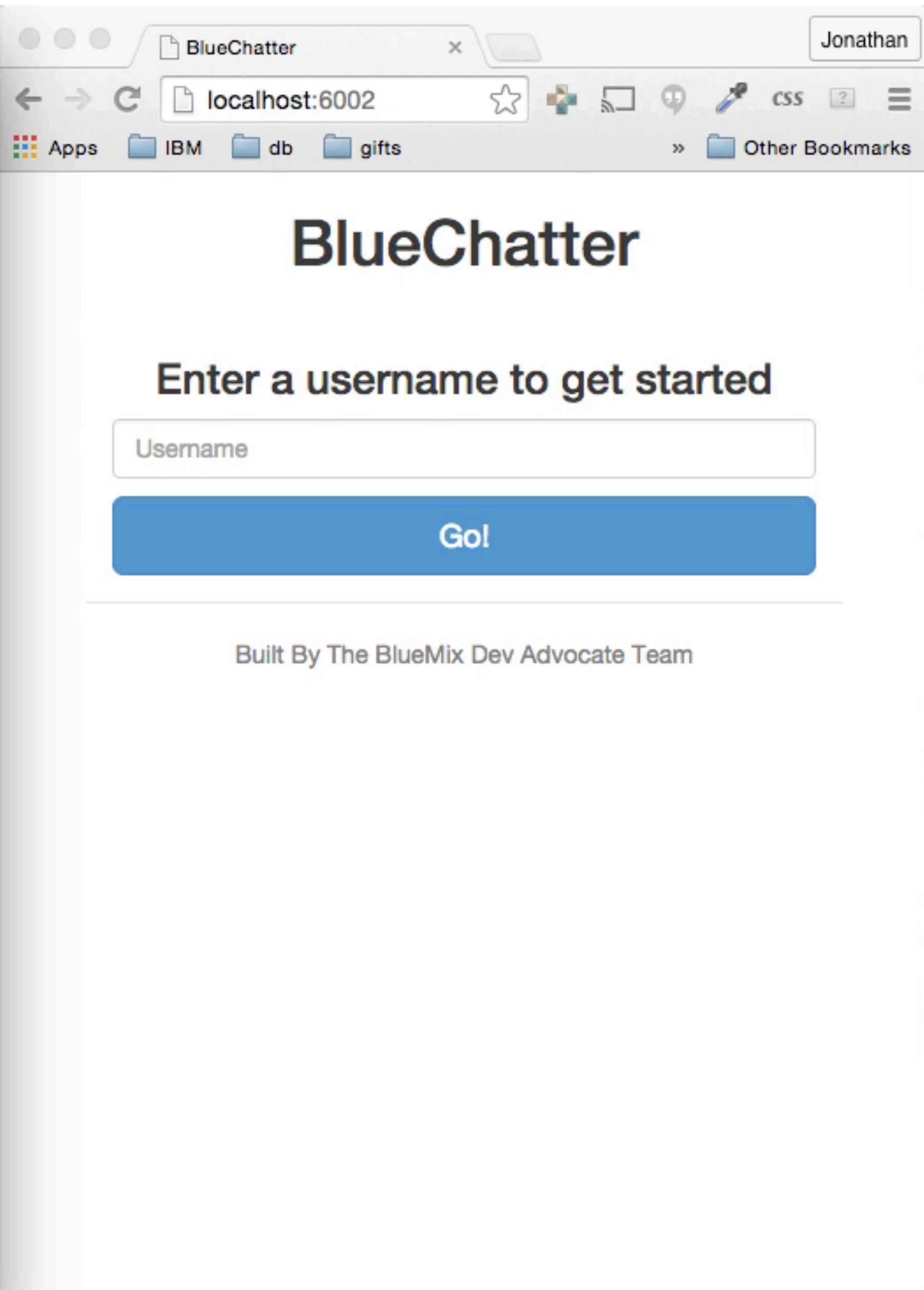
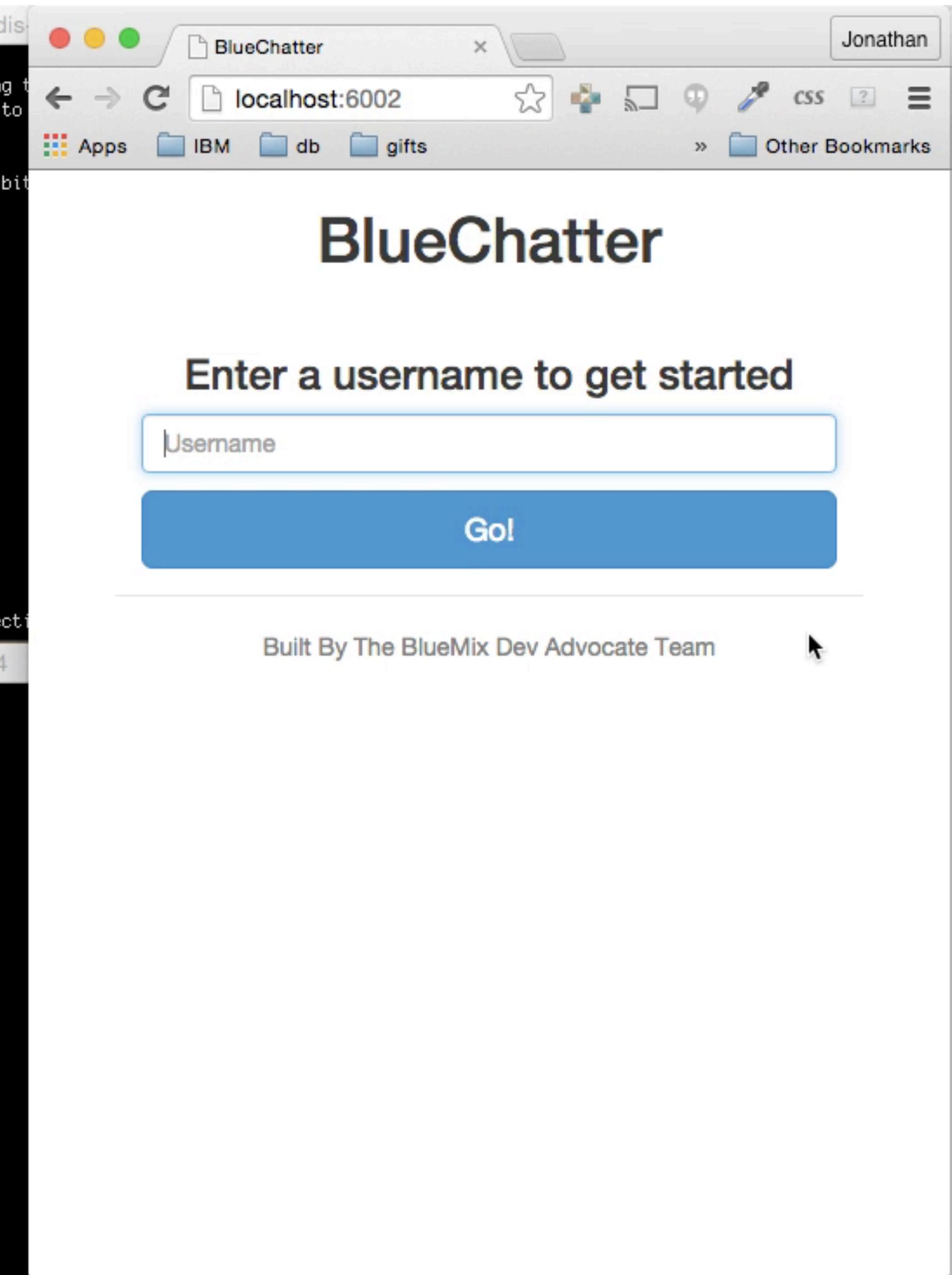
```
→ bluechatter git:(master) npm start  
> BlueChatter@0.0.1 start /Users/jkaufman/Workspace/bluechatter  
> node app.js
```

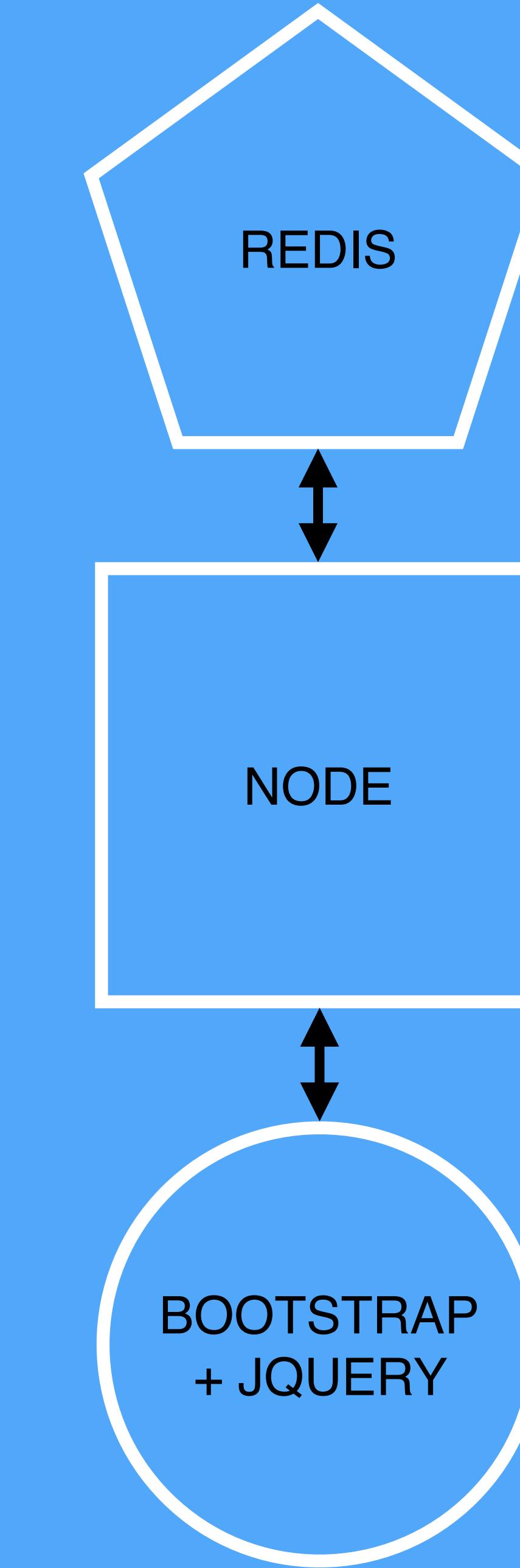
Express server listening on port 6002

The subscriber redis client has connected!

The publisher redis client has connected!

```
jkaufman — redis  
redis-server  
2609:C 15 Oct 13:03:44.119 # Warning: no config file specified, using t  
2609:M 15 Oct 13:03:44.121 * Increased maximum number of open files to  
Redis 3.0.5 (00000000/0) 64 bit  
Running in standalone mode  
Port: 6379  
PID: 2609  
http://redis.io  
2609:M 15 Oct 13:03:44.122 # Server started, Redis version 3.0.5  
2609:M 15 Oct 13:03:44.122 * DB loaded from disk: 0.000 seconds  
2609:M 15 Oct 13:03:44.122 * The server is now ready to accept connecti  
bluechatter — npm start — npm — node — 80x24  
bluechatter git:(master) npm start  
> BlueChatter@0.0.1 start /Users/jkaufman/Workspace/bluechatter  
> node app.js  
  
Express server listening on port 6002  
The subscriber redis client has connected!  
The publisher redis client has connected!
```





TO SHARE (and guarantee behavior):

- 1.Have same OS
- 2.Have same version of Node
- 3.Have same version of Redis



WITH DOCKER



1. Build the app into an image
2. Run the image in a container



DOCKERFILE

```
FROM registry.ng.bluemix.net/ibmnode:latest
COPY ./ bluechatter
WORKDIR bluechatter
RUN npm install -d --production
EXPOSE 80
ENV PORT 80
ENV DOCKER true
CMD ["node", "app.js"]
```



```
→ bluechatter git:(master) docker build -t bluechatter:test .
```

```
Sending build context to Docker daemon 142.8 kB
```

```
Step 0 : FROM registry.ng.bluemix.net/ibmnode:latest
```

```
---> 8f962f6afc9a
```

```
Step 1 : COPY ./ bluechatter
```

```
---> 51605b64b015
```

```
Removing intermediate container 7b0f6e22fb99
```

```
Step 2 : WORKDIR bluechatter
```

```
---> Running in e1c0436890d5
```

```
---> 6f607172a3ff
```

```
Removing intermediate container e1c0436890d5
```

```
Step 3 : RUN npm install -d --production
```

```
---> Running in 278bf3713ef6
```

```
cfenv@1.0.3 node_modules/cfenv
```

```
└─ ports@1.1.0
```

```
└─ underscore@1.8.3
```

```
└─ js-yaml@3.4.3 (esprima@2.6.0, argparse@1.0.2)
```

```
npm info ok
```

Removing intermediate container 58b5613bfe6f

Step 4 : EXPOSE 80

---> Running in f18f213e2bc6

Removing intermediate container f18f213e2bc6

Step 5 : ENV PORT 80

---> Running in 214f959e23ca

Removing intermediate container 214f959e23ca

Step 6 : ENV DOCKER true

---> Running in 701f4a794e70

Removing intermediate container 701f4a794e70

Step 7 : CMD node app.js

---> Running in 74c50bc04811

Removing intermediate container 74c50bc04811

Successfully built 250ab2421de16

IDENTIFY AND RUN THE IMAGE



```
→ bluechatter git:(master) docker images
```

| REPOSITORY | TAG | IMAGE ID | CREATED | VIRTUAL SIZE |
|-------------|--------------|--------------|----------------|--------------|
| bluechatter | test | 250ab421de16 | 12 seconds ago | 673.2 MB |
| node | 0.10-onbuild | f8a19007bc68 | 2 days ago | 633.4 MB |

```
→ bluechatter git:(master) docker run -t bluechatter:test
```

Express server listening on port 80

There was an error with the subscriber redis client Error: Redis connection to redis:6379 failed - getaddrinfo ENOTFOUND

There was an error with the publisher redis client Error: Redis connection to redis:6379 failed - getaddrinfo ENOTFOUND

There was an error with the subscriber redis client Error: Redis connection to redis:6379 failed - getaddrinfo ENOTFOUND

There was an error with the publisher redis client Error: Redis connection to redis:6379 failed - getaddrinfo ENOTFOUND

There was an error with the subscriber redis client Error: Redis connection to redis:6379 failed - getaddrinfo ENOTFOUND

There was an error with the publisher redis client Error: Redis connection to redis:6379 failed - getaddrinfo ENOTFOUND

NOTH
NOES



DOCKER COMPOSE



DEFINE AND RUN MULTI- CONTAINER APPLICATIONS



docker-compose.yml

```
web:  
  build: .  
  ports:  
    - "80:80"  
    - "8080:8080"  
  links:  
    - redis  
redis:  
  image: redis
```



RUNS WITH
ONE COMMAND:
`docker-compose up`



```
→ bluechatter git:(master) docker-compose up
Pulling redis (redis:latest)...
latest: Pulling from library/redis
library/redis:latest: The image you are pulling has been verified. Important:
image verification is a tech preview feature and should not be relied on to
provide security.

Digest: sha256:ea780255d8b42745f14e61c75c83eba2c7254f6cccf97f975a644890f5d3bf7
Status: Downloaded newer image for redis:latest
Creating bluechatter_redis_1...
Building web...
Step 0 : FROM registry.ng.bluemix.net/ibmnode:latest
...
Successfully built 5a9d88a42af2
Creating bluechatter_web_1...
Attaching to bluechatter_redis_1, bluechatter_web_1
```


IDENTIFY
OUR MACHINE'S IP
AND CONNECT



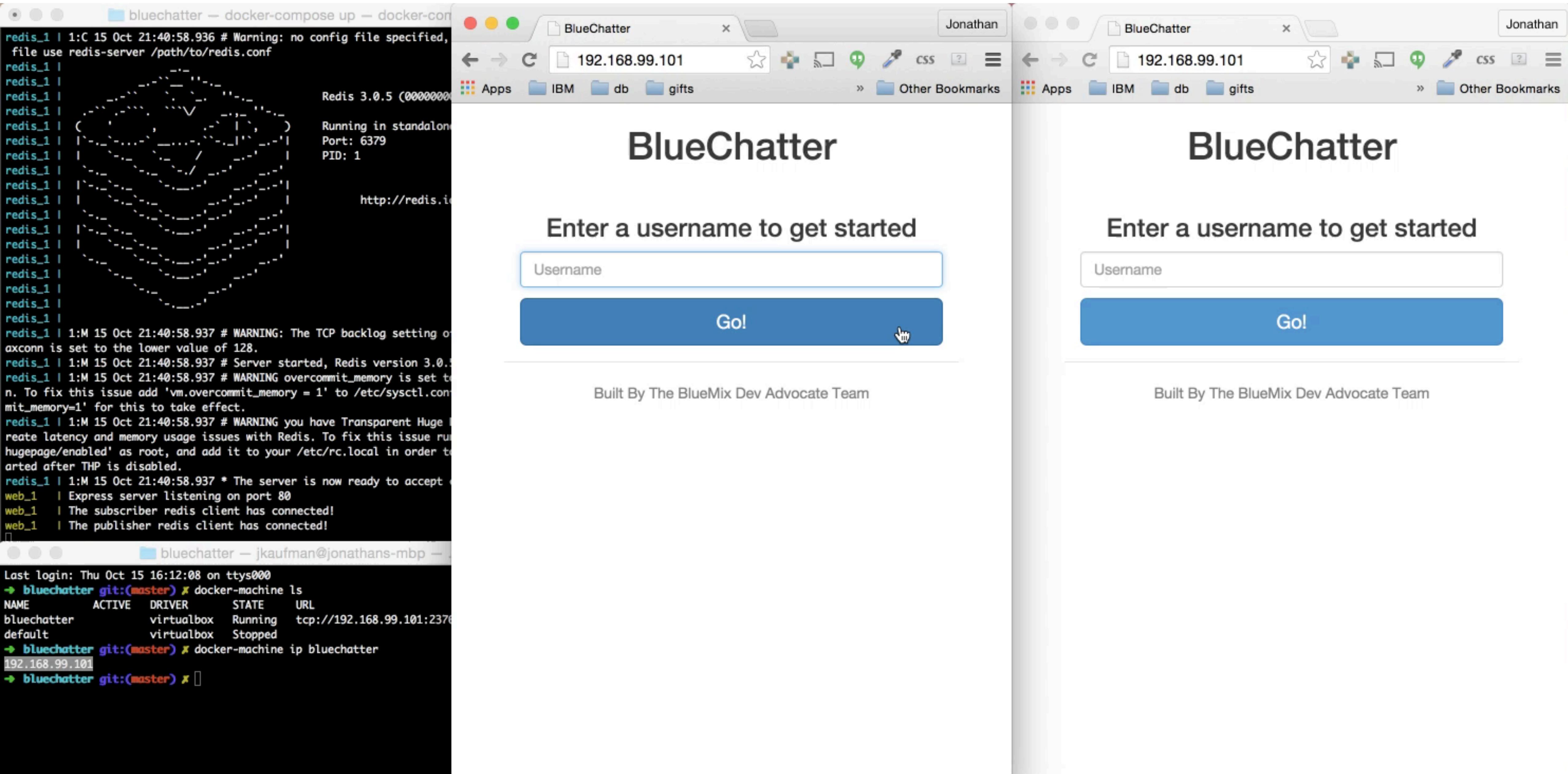
```
→ bluechatter git:(master) docker-machine ls
```

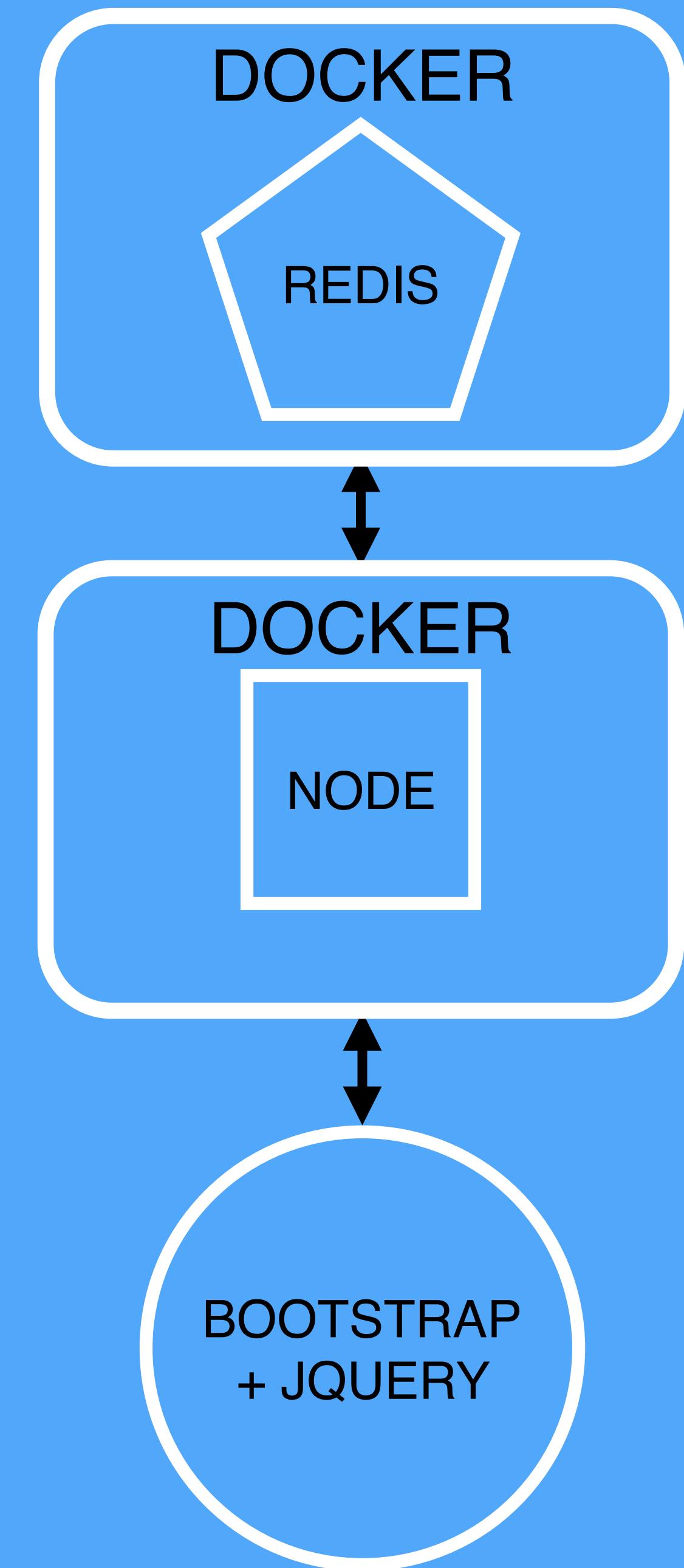
| NAME | ACTIVE | DRIVER | STATE | URL | SWARM |
|-------------|--------|------------|---------|---------------------------|-------|
| bluechatter | | virtualbox | Running | tcp://192.168.99.101:2376 | |
| default | | virtualbox | Stopped | | |

```
→ bluechatter git:(master) docker-machine ip bluechatter
```

```
192.168.99.101
```

```
→ bluechatter git:(master)
```





TO SHARE (and guarantee behavior):

1. Have Docker



SOLVED: INCONSISTENT ENVIRONMENTS



TO THE
CLOUD



STEPS.

1. BUILD + PUSH IMAGE TO REGISTRY
2. CREATE BRIDGE APP + BIND REDIS
3. START CONTAINER FROM IMAGE





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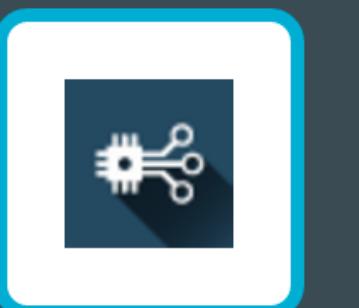
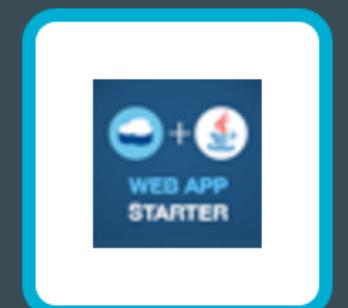
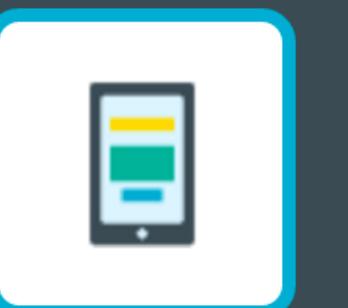
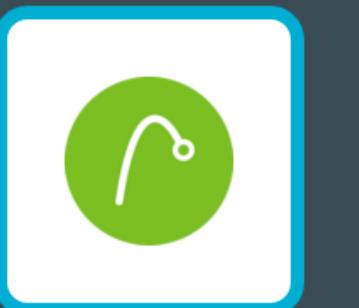
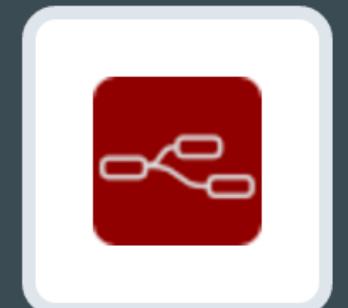
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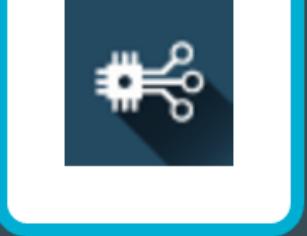
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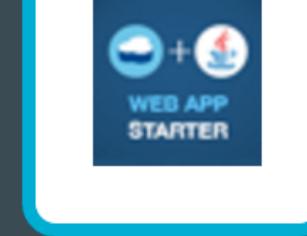
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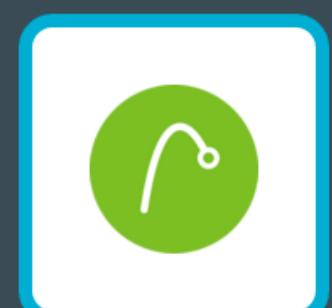
MobileFirst Services Starter

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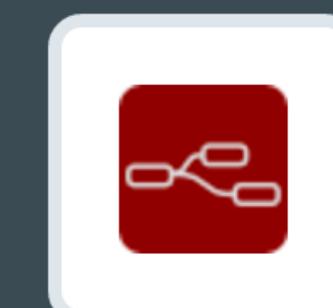
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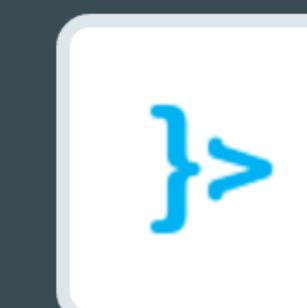
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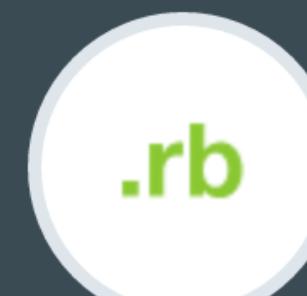
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Python

Community



Ruby

Community



Community buildpacks

Community

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IBM



ibmliberty

IBM



ibmnode

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Add your own

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1. BUILD + PUSH IMAGE TO REGISTRY

```
cf ic build -t bluechatter .
```



```
→ bluechatter git:(master) cf ic build -t bluechatter .
```

```
Sending build context to Docker daemon 142.8 kB
```

```
Step 0 : FROM registry.ng.bluemix.net/ibmnode:latest
```

```
...
```

```
Successfully built e0d9661a2c3f
```

```
The push refers to a repository [registry.ng.bluemix.net/jdkaufma/bluechatter]
```

```
Sending image list
```

```
Pushing repository registry.ng.bluemix.net/jdkaufma/bluechatter (1 tags)
```

```
Image 83e4dde6b9cf already pushed, skipping
```

```
Image d2a0ecffe6fa already pushed, skipping
```

```
e288e2539065: Image successfully pushed
```

```
803521c35f1b: Image successfully pushed
```

```
Pushing tag for rev [e0d9661a2c3f] on {https://registry.ng.bluemix.net/v1/repositories/jdkaufma/bluechatter/tags/latest}
```

```
→ bluechatter git:(master)
```



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 Watson Mobile DevOps Web and Application Integration Data and Analytics Security Business Analytics Internet of Things Custom APIs

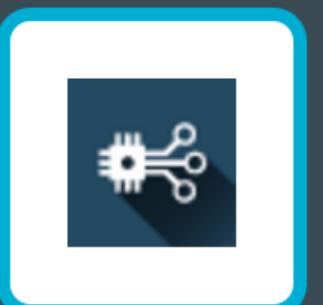
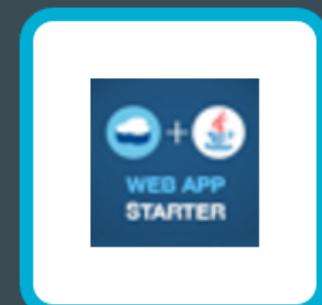
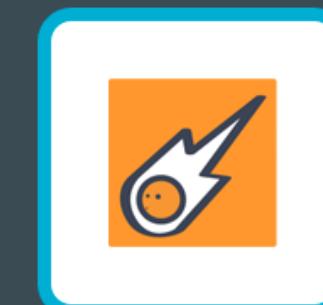
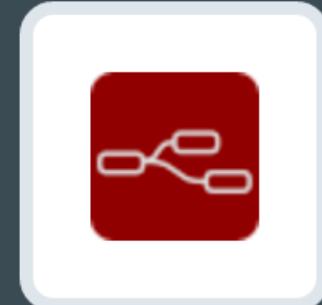
- Provider

 IBM Third Party Community Beta My Org

Starters // Choose a package of sample code and services, or start from scratch

Boilerplates

Get started with a new app, now

Apache Spark Starter
IBMInternet of Things Foundation Starter
IBMJava Cloudant Web Starter
IBMJava DB Web Starter
IBMLoopBack Starter
IBMMobileFirst Services Starter
IBMPersonality Insights Java Web Starter
IBMStrongLoop Arc
IBMNode-RED Starter
CommunityPython Flask
CommunityRuby Sinatra
CommunityVaadin Rich Web Starter
Community

Compute // Start with Cloud Foundry or Docker images

Runtimes

Run an app in the language of your choice

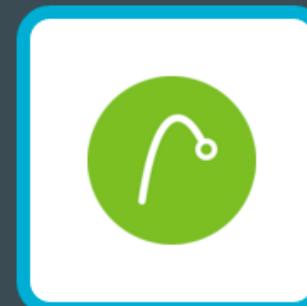
Liberty for Java™
IBMSDK for Node.js™
IBM.php
Community.py
Community.rb
CommunityCommunity buildpacks
Community

- Watson
- Mobile
- DevOps
- Web and Application
- Integration
- Data and Analytics
- Security
- Business Analytics
- Internet of Things
- Custom APIs

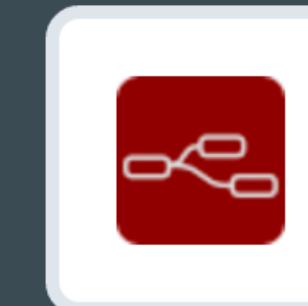
- Provider
- IBM
 - Third Party
 - Community
 - Beta
 - My Org



Personality Insights Java
Web Starter
IBM



StrongLoop Arc
IBM



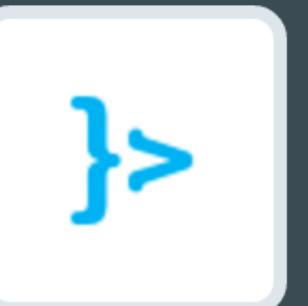
Node-RED Starter
Community



Python Flask
Community



Ruby Sinatra
Community



Vaadin Rich Web Starter
Community

Compute // Start with Cloud Foundry or Docker images

Runtimes

Run an app in the language of your choice



Liberty for Java™
IBM



SDK for Node.js™
IBM



PHP
Community



Python
Community



Ruby
Community



Community buildpacks
Community



Container Images

Create containers from IBM images or add your own.



ibm-mobilefirst-starter
IBM



ibm-node-strong-pm
IBM



ibmliberty
IBM



ibmnode
IBM



bluechatter
My Org



Add your own
My Org

Services // The building blocks of any great app

Watson

Build cognitive apps that help enhance, scale, and accelerate human

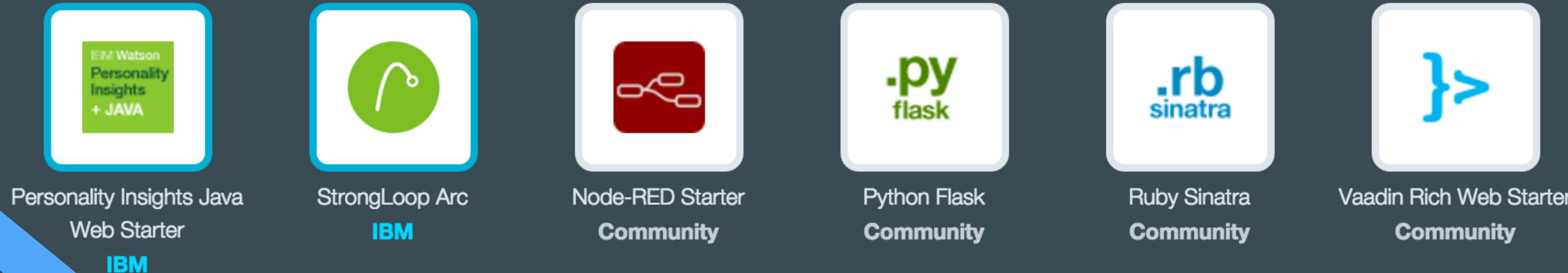


2. MAKE A **BRIDGE** + BIND REDIS



- Watson
- Mobile
- DevOps
- Web and Application
- Integration
- Data and Analytics
- Security
- Business Analytics
- Internet of Things
- Custom APIs

- Provider
- IBM
 - Third Party
 - Community
 - Beta
 - My Org



Compute // Start with Cloud Foundry Docker images

Runtimes

Run an app in the language of your choice



Liberty for Java™
IBM



SDK for Node.js™
IBM



PHP
Community



Python
Community



Ruby
Community



Community buildpacks
Community

Container Images

Create containers from IBM images or add your own.



ibm-mobilefirst-starter
IBM



ibm-node-strong-pm
IBM



ibmliberty
IBM



ibmnode
IBM



bluechatter
My Org



Add your own
My Org

Services // The building blocks of any great app

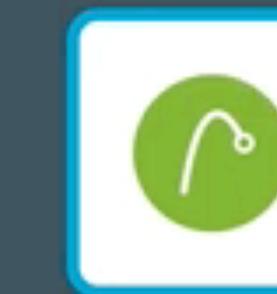
Watson

Build cognitive apps that help enhance, scale, and accelerate human

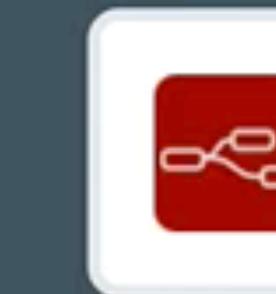




Personality Insights Java
Web Starter
IBM



StrongLoop Arc
IBM



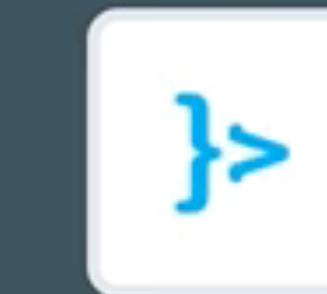
Node-RED Starter
Community



Python Flask
Community



Ruby Sinatra
Community



Vaadin Rich Web Starter
Community

Compute // Start with Cloud Foundry or Docker images

Runtimes

Run an app in the language of your choice



Liberty for Java™
IBM



SDK for Node.js™
IBM



PHP
Community



Python
Community



Ruby
Community



Community buildpacks
Community

Container Images

Create containers from IBM images or add your own.



ibm-mobilefirst-starter
IBM



ibm-node-strong-pm
IBM



ibmliberty
IBM



ibmnode
IBM



bluechatter
My Org



Add your own
My Org

Services // The building blocks of any great app

Watson

Build cognitive apps that help enhance, scale, and accelerate human expertise





ORG: jdkaufma@us.ibm.com



Type here to search

- Services

- Watson
- Mobile
- DevOps
- Web and Application
- Integration
- Data and Analytics
- Security
- Business Analytics
- Internet of Things
- Custom APIs

- Provider

- IBM
- Third Party
- Beta

Integration

Extend existing investments and infrastructure



API Management

IBM



Cloud Integration

IBM



Secure Gateway

IBM



Rocket Mainframe Data

Third Party

Data and Analytics

Essential data services; limitless possibilities

HELP ME PICK



Analytics for Apache Hadoop

IBM BETA



Apache Spark

IBM BETA



BigInsights for Apache Hadoop

IBM



Cloudant NoSQL DB

IBM



dashDB

IBM



DataWorks

IBM



Elasticsearch by Compose

IBM



Geospatial Analytics

IBM



IBM DB2 on Cloud

IBM



Insights for Twitter

IBM



MongoDB by Compose

IBM



Object Storage

IBM BETA



Object Storage (v2)

IBM BETA



PostgreSQL by Compose

IBM



Predictive Analytics

IBM BETA



Redis by Compose

IBM



SQL Database

IBM



Streaming Analytics

IBM

- Security
- Business Analytics
- Internet of Things
- Custom APIs

Provider

- IBM
- Third Party
- Beta

Data and Analytics

Essential data services; limitless possibilities

[HELP ME PICK](#)



Analytics for Apache
Hadoop
IBM BETA



Apache Spark
IBM BETA



BigInsights for Apache
Hadoop
IBM



Cloudant NoSQL DB
IBM



dashDB
IBM



DataWorks
IBM



Elasticsearch by
Compose
IBM



Geospatial Analytics
IBM



IBM DB2 on Cloud
IBM



Insights for Twitter
IBM



MongoDB by Compose
IBM



Object Storage
IBM BETA



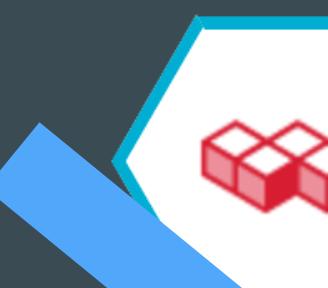
Object Storage (v2)
IBM BETA



PostgreSQL by Compose
IBM



Predictive Analytics
IBM BETA



Redis by Compose
IBM



SQL Database
IBM



Streaming Analytics
IBM



Time Series Database
IBM



ClearDB MySQL
Database
Third Party



ElephantSQL
Third Party



MongoLab
Third Party



Redis Cloud
Third Party

Security

Build security into
application design





HELP ME PICK

Hadoop
IBM BETA

IBM BETA

Hadoop
IBM

IBM

IBM

IBM

Elasticsearch by
Compose
IBMGeospatial Analytics
IBMIBM DB2 on Cloud
IBMInsights for Twitter
IBMMongoDB by Compose
IBMObject Storage
IBM BETAObject Storage (v2)
IBM BETAPostgreSQL by Compose
IBMPredictive Analytics
IBM BETARedis by Compose
IBMSQL Database
IBMStreaming Analytics
IBMTime Series Database
IBMClearDB MySQL
Database
Third PartyElephantSQL
Third PartyMongoLab
Third PartyRedis Cloud
Third Party

Security

Build security into
application designApplication Security
Manager
IBM BETAAppScan Dynamic
Analyzer
IBMAppScan Mobile Analyzer
IBMMobile Analyzer for iOS
IBM BETASingle Sign On
IBMStatic Analyzer
IBM BETA



ORG: jdkaufma@us.ibm.com

+ Create a Space

blink

dev

CF APPS (1)

SERVICES (1)

CONTAINERS (0)

VIRTUAL MACHINES (0)

drone-selfie

Ghost

News Insights

Relay

Stock Insights

Subreddit Simulator



Cloud Foundry Apps

3.250 GB/16 GB Used

CREATE APP



Containers

0 B/2 GB | 1/2 Public IPs

START CONTAINERS



Virtual Machines

0 B/0 B | 0/0 Public IPs

RUN VIRTUAL MACHINES

100+

Applications



zendcon-bridge

zendcon-bridge.mybluemix.net



Running



Services



redis-chatter

CONTAINERS (0)

VIRTUAL MACHINES (0)

drone-selfie

Ghost

News Insights

Relay

Stock Insights

Subreddit Simulator

Applications



zendcon-bridge

zendcon-bridge.mybluemix.net



Running



Services



redis-chatter

Redis Cloud



zendc...

Plan: 30mb



3. START CONTAINER FROM IMAGE



aufma@us.ibm.com

e a Space

PS (1)

CES (1)

AINERS (0)

AL MACHINES (0)

file

ights

ights

t Simulator

Type to search

Cloud Foundry Apps
3.250 GB/16 GB Used

Containers
0 B/2 GB | 1/2 Public IPs

Virtual Machines
0 B/0 B | 0 Public IPs

Services & APIs
25/80 Used

CREATE APP START CONTAINERS RUN VIRTUAL MACHINES USE SERVICES OR APIs

Applications

zendcon-bridge
zendcon-bridge.mybluemix.net

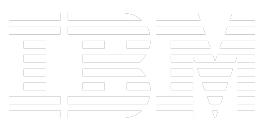
.js redis

Running

Services

redis-chatter
Redis Cloud

zendc...



bluechatter

My Org

TAG / VERSION

[Copy Image URL](#)

VULNERABILITY ADVISOR

Status: Incomplete ●
Image scan is still in progress. Try again later.

VIRTUAL SIZE

427.36 MB

CREATED DATE

10/16/2015

TYPE

Container Image[VIEW DOCS](#)[TERMS](#)**Single Container****Scalable Group**

Use scalable group deployment for long-term processes that need high availability. You can make your container group accessible to the internet by assigning a public IP address.

Space:

dev

Container group name:

Instances:

Example: 2

Size:

Micro (256 MB Memory, 16 GB Storage)

Host:

Domain:

mybluemix.net

HTTP port: ⓘ

 Enable automatic recovery

Advanced Options

Volumes:

Add volumes that are created and managed from the CLI by specifying a path to your container.

[Learn more](#) about creating and managing container volumes from the CLI.

Environment Variables:

[Add a new environment variable](#)

Service binding:

Bind services to your containers from the Cloud Foundry apps in your Bluemix space.

Projected Usage

Memory:

USED

256 MB

QUOTA

2 GB**CREATE**

Single Container **Scalable Group**

Use single container deployment for short-term processes. You can make your container accessible to the internet by assigning a public route.

Space: dev

Container name: b

Size: Micro (256 MB Memory, 16 GB Storage)

Public IP address: Leave unassigned 22.80

Advanced Options

Projected Usage

Memory:

| USED | QUOTA |
|--------|-------|
| 256 MB | 2 GB |

Public IP Addresses:

| USED | REQUESTED | QUOTA |
|------|-----------|-------|
| 0 | 1 | 2 |

CREATE

Container Pricing Monthly prices shown are for country or region: [United States](#)

| Plan | Features | |
|-----------|--|---|
| ✓ Default | Use one or more containers free for 365 GB-hours free each month, use 20 GB free external storage and 2 static public ips free each month with your containers | \$0.028 USD/GB-Hour \$2.00 USD/additional public IP address \$14.00 USD/additional 20 GB external storage |

i This is a service plan for the IBM Containers for Bluemix.

bluechatter-zendcon Conta x

https://containers.ng.bluemix.net/v2/containers/61ebfd14-971a-4549-8fba-243cd959a00e/json?at=

IBM Bluemix

Back to Dashboard

bluechatter-zendcon

Overview >

Monitoring and Logs

bluechatter-zendcon

Created: 10/16/15, 2:30 PM | Private IP: | Public IP: 134.168.18.22

Volumes: None | Image: jdkaufma/bluechatter:latest

MEMORY 256 MB NO MONITORING

STORAGE 16 GB

SIZE: Micro

Services bound from zendcon-bridge:

Redis Cloud

redis-chatter
30mb

Show Credentials

BlueChatter x Jonathan

134.168.18.22

css

BlueChatter

134.168.18.22

css

BlueChatter

Enter a username to get started

Username

Go!

Built By The BlueMix Dev Advocate Team

BlueChatter x Jonathan

134.168.18.22

css

BlueChatter

134.168.18.22

css

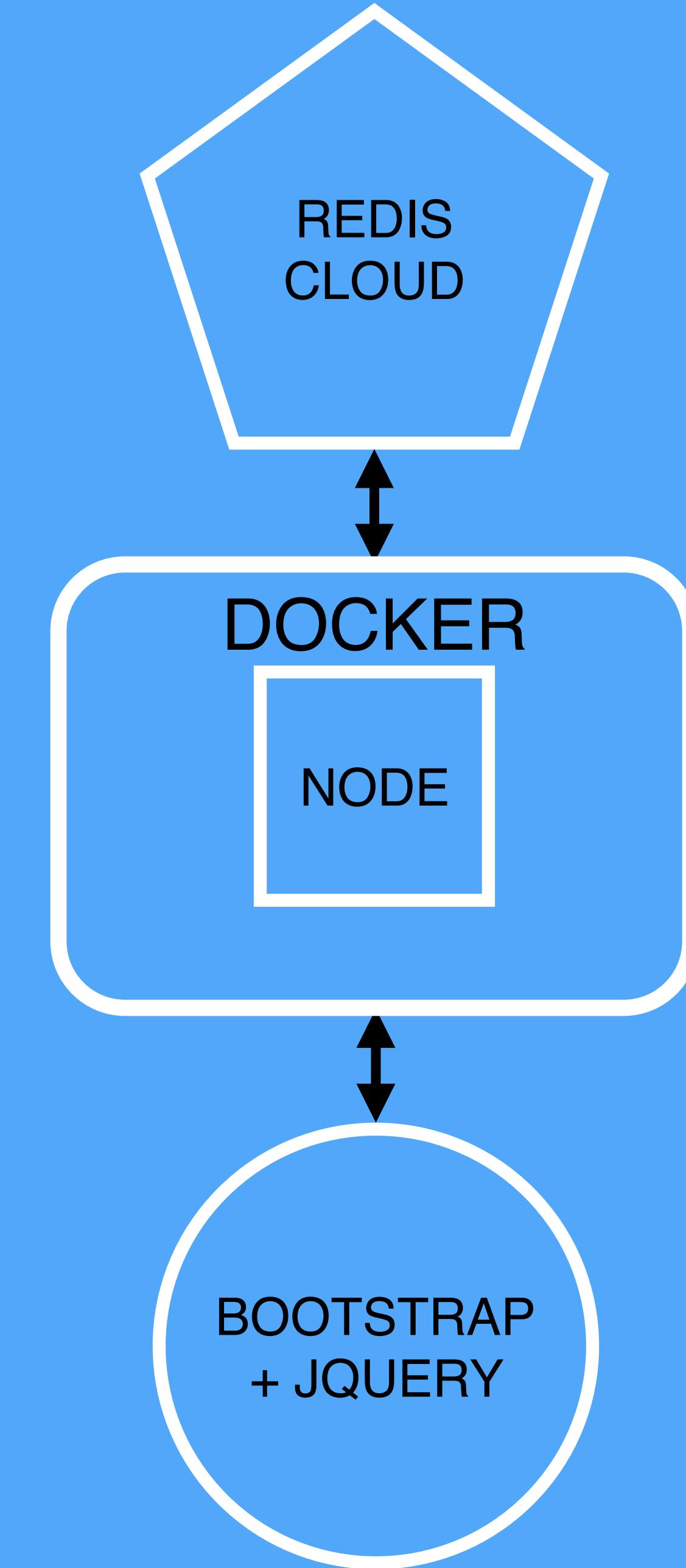
BlueChatter

Enter a username to get started

Username

Go!

Built By The BlueMix Dev Advocate Team



<http://bit.ly/blueqcon>



SOME SETUP
REQUIRED



HOOK UP SHELL TO DOCKER



```
→ ~ docker-machine ls
NAME      ACTIVE   DRIVER      STATE      URL
bluechatter          virtualbox  Running    tcp://192.168.99.101:2376
default            virtualbox  Stopped
→ ~ docker-machine env bluechatter
export DOCKER_TLS_VERIFY="1"
export DOCKER_HOST="tcp://192.168.99.101:2376"
export DOCKER_CERT_PATH="/Users/jkaufman/.docker/machine/machines/bluechatter"
export DOCKER_MACHINE_NAME="bluechatter"
# Run this command to configure your shell:
# eval "$(docker-machine env bluechatter)"
→ ~ eval "$(docker-machine env bluechatter)"
→ ~
```

CLI DECISIONS



Cloud Foundry Plug-in

ICE (IBM Containers Extension)

Runs native Docker CLI
commands

Yes

Local image-development
only

Requires Docker and Cloud
Foundry CLI

Yes

Yes

Requires Python, Pip, and
Setuptools

No

Yes



<https://www.ng.bluemix.net/docs/>

**CLICK “CONTAINERS”
CLICK “SETTING UP THE
IBM CONTAINERS CLI”**





https://www.ng.bluemix.net/docs/containers/container_cli_ov.html



[← Setting up the CLI](#)

Type to search

[Choosing a CLI](#)[IBM CONTAINERS PLUG-IN](#)[Installing the IBM Containers plug-in](#)[Upgrading the IBM Containers plug-in](#)[Uninstalling the IBM Containers plug-in](#)[IBM CONTAINERS EXTENSION \(ICE\)](#)[Option 1: Creating a container that runs ICE](#)[Option 2: Installing ICE and its prereqs on your computer](#)[Uninstalling ICE](#)[LOGGING IN TO THE CLI](#)[Creating Web Apps](#) / [IBM Containers](#) / [Setting up the CLI](#)

Setting up the IBM Containers CLI

Last Updated: 10/8/2015

Some container creation and management tasks can be done from the Bluemix™ Dashboard, but for maximum capabilities, you can set up one of the IBM® Containers CLIs.

[TUTORIALS AND SAMPLES](#)[ICE interactive tutorial](#)

Choosing a CLI

If you are just getting started with IBM Containers, use the Cloud Foundry plug-in for IBM Containers. With the plug-in, you are required to install fewer prerequisites than ICE, but all of the same functions are available. Plus, you have the ability to run native Docker commands.

If you used ICE in the past, you can continue to use it to manage your containers in Bluemix.

| | Cloud Foundry plug-in | ICE |
|---------------------------------------|---------------------------------------|------------------------------|
| Runs native Docker CLI commands | Yes | Local image development only |
| Requires Docker and Cloud Foundry CLI | Yes | Yes |

I PREFER CLOUD FOUNDRY PLUGIN



| | |
|---------------|----------------|
| cf ic build | docker build |
| cf ic images | docker images |
| cf ic inspect | docker inspect |
| cf ic restart | docker restart |
| cf ic run | docker run |
| cf ic start | docker start |
| cf ic stop | docker stop |
| cf ic version | docker version |

```
→ bluechatter git:(master) cf ic images
```

| REPOSITORY | TAG | IMAGE ID | CREATED | SIZE |
|---|--------|--------------|-------------|----------|
| registry.ng.bluemix.net/jdkaufma/bluechatter | latest | e0d9661a2c3f | 3 days ago | 448.1 MB |
| registry.ng.bluemix.net/ibm-node-strong-pm | latest | ef21e9d1656c | 13 days ago | 528.7 MB |
| registry.ng.bluemix.net/ibmliberty | latest | 2209a9732f35 | 13 days ago | 492.8 MB |
| registry.ng.bluemix.net/ibmnode | latest | 8f962f6afc9a | 13 days ago | 429 MB |
| registry.ng.bluemix.net/ibm-mobilefirst-starter | test | 97513e56aaa7 | 13 days ago | 769.1 MB |
| registry.ng.bluemix.net/ibm-mobilefirst-starter | 7.1 | 97513e56aaa7 | 13 days ago | 769.1 MB |

```
→ bluechatter git:(master)
```

INSTALL IBM CONTAINER CLOUD FOUNDRY CLI PLUGIN



```
➔ ~ cf install-plugin https://static-ice.ng.bluemix.net/ibm-containers-mac
```

Attempting to download binary file from internet address...

9086880 bytes downloaded...

Installing plugin /var/folders/h9/00ngb57132bgxqys_jvzpbw40000gn/T/ibm-contain
OK

Plugin IBM-Containers v0.8.723 successfully installed.

```
➔ ~ cf plugins
```

Listing Installed Plugins...

OK

| Plugin Name | Version | Command Name | Command Help |
|----------------|---------|--------------|-----------------------|
| IBM-Containers | 0.8.723 | ic | IBM Containers Plugin |

```
➔ ~
```

AUTHENTICATE TO BLuemix



```
→ bluechatter git:(master) cf login api.ng.bluemix.net  
API endpoint: https://api.ng.bluemix.net
```

Email> jdkaufma@us.ibm.com

Password>

Authenticating...

OK

API endpoint: https://api.ng.bluemix.net (API version: 2.27.0)

User:

jdkaufma@us.ibm.com

Org:

jdkaufma@us.ibm.com

Space:

dev

```
→ bluechatter git:(master) cf ic login [-a https://api.ng.bluemix.net]  
[-H https://containers-api.ng.bluemix.net/v2/containers]  
[-R registry.ng.bluemix.net]  
** Retrieving client certificates from IBM Containers  
** Storing client certificates in /Users/jkaufman/.ice/certs  
Successfully retrieved client certificates  
→ bluechatter git:(master)
```

NOT
COVERED



RESILIENT CONTAINER GROUPS





bluechatter

My Org

TAG / VERSION

▼

[Copy Image URL](#)

VULNERABILITY ADVISOR

Status: Incomplete ●

Image scan is still in progress. Try again later.

VIRTUAL SIZE

427.36 MB

CREATED DATE

10/16/2015

TYPE

Container Image

[VIEW DOCS](#)

[TERMS](#)

Single Container

Scalable Group

Use scalable group deployment for long-term processes that need high availability. You can make your container group accessible to the internet by assigning a public IP address.

Space:

dev

Container group name:

Instances:

Example: 2

Size:

Micro (256 MB Memory, 16 GB Storage)

Host:

Domain:

mybluemix.net

HTTP port: ⓘ

▼

Enable automatic recovery

Advanced Options ▾

Volumes:

Add volumes that are created and managed from the CLI by specifying a path to your container.

[Learn more](#) about creating and managing container volumes from the CLI.

Environment Variables:

[Add a new environment variable](#)

Service binding:

Bind services to your containers from the Cloud Foundry apps in your Bluemix space.

▼

Projected Usage

Memory:

USED

256 MB

QUOTA

2 GB

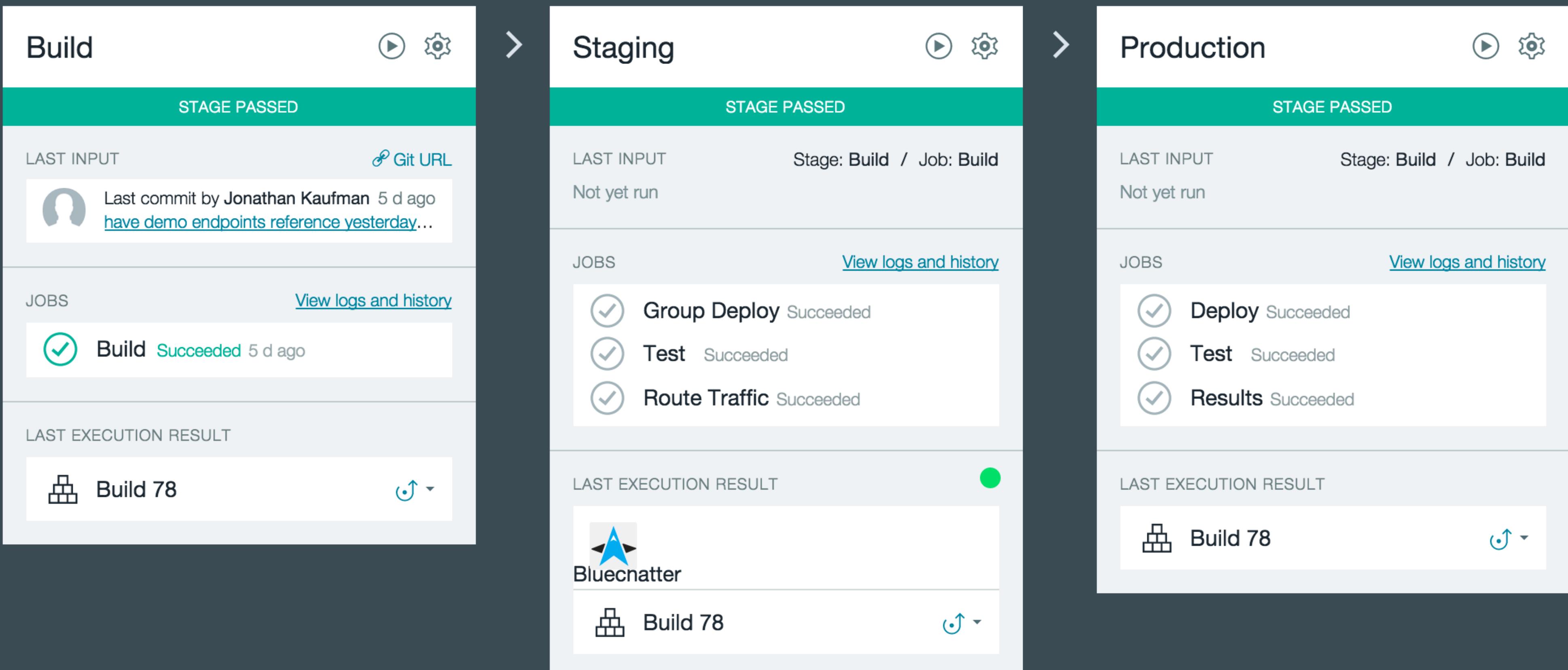
CREATE

DEPLOYMENT PIPELINES





Pipeline: All Stages



+ ADD STAGE

MONITORING

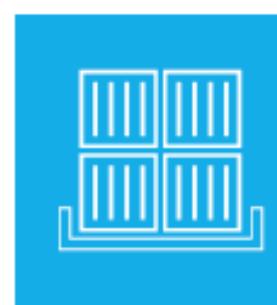




bluechatter-zendcon

Created: 10/16/15, 11:30 AM | Private IP: 172.31.0.7 | Public IP: 134.168.18.22 | Ports: 22 80

Volumes: None | Image: jdkaufma/bluechatter:latest



SIZE: Micro

MEMORY
256 MB

STORAGE
16 GB

MEMORY USED



MEMORY USAGE
33.48 MB



Services bound from [zendcon-bridge](#):



Redis Cloud
redis-chatter
30mb

Show Credentials



Monitoring

Logging



Last hour ▾

ADVANCED VIEW

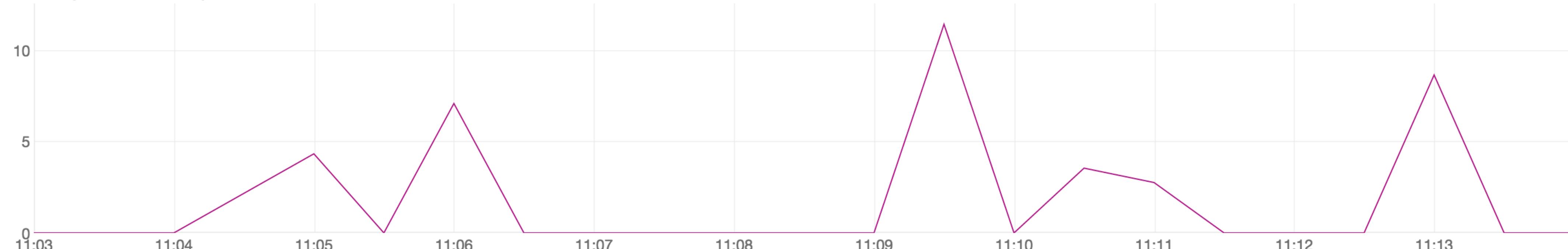
CPU USAGE (%)



MEMORY UTILIZATION (MB)



NETWORK IN (BYTES/SECOND)



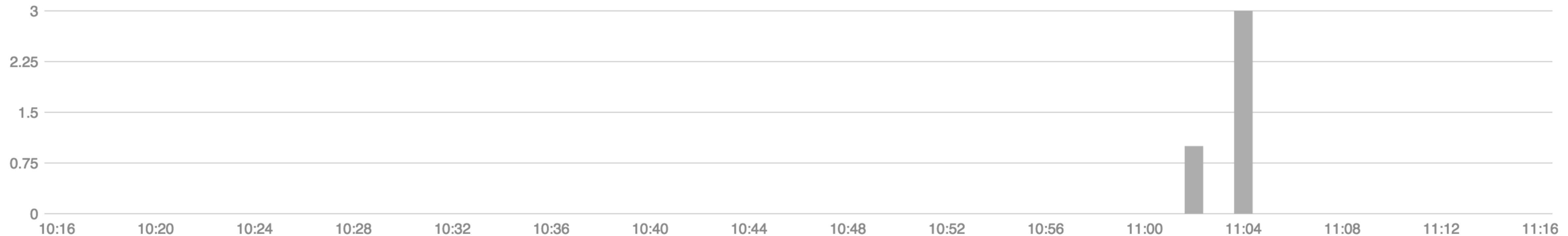
Monitoring

Logging

Last hour ▾

ADVANCED VIEW

LOG MESSAGES OVER TIME



Show 10 entries

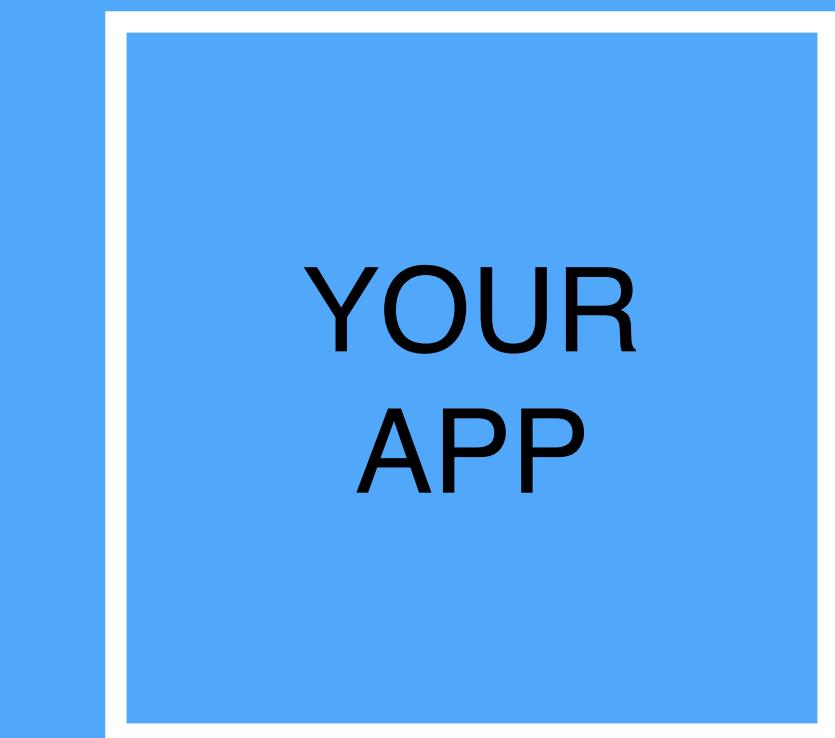
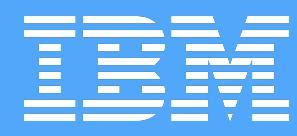
| Date/Time | Machine | Description |
|------------------|----------------------------|---|
| 10/20/2015 11:02 | prod-dal09-vizio2- host-07 | {"log":"The app is running in a Docker container on Bluemix so we are sleeping for 90 seconds waiting for the networking to become active.\n","stream":"stdout","time":"2015-10-20T18:02:54.57066508Z"} |
| 10/20/2015 11:04 | prod-dal09-vizio2- host-07 | {"log":"The publisher redis client has connected!\n","stream":"stdout","time":"2015-10-20T18:04:24.636937614Z"} |
| 10/20/2015 11:04 | prod-dal09-vizio2- host-07 | {"log":"The subscriber redis client has connected!\n","stream":"stdout","time":"2015-10-20T18:04:24.603274311Z"} |
| 10/20/2015 11:04 | prod-dal09-vizio2- host-07 | {"log":"Express server listening on port 80\n","stream":"stdout","time":"2015-10-20T18:04:24.565713108Z"} |

Showing 1 to 4 of 4 entries

Previous 1 Next

LET'S
RECAP



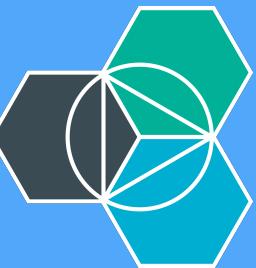


YOUR
APP

IBM Bluemix™
www.bluemix.net







IBM BLUEMIX

DOCKER

YOUR
APP

DOCKER

YOUR
APP

DOCKER

YOUR
APP



RESOURCES



Docker Toolbox

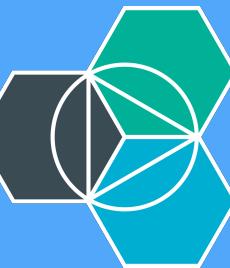
<https://www.docker.com/toolbox>

IBM Containers

https://www.ng.bluemix.net/docs/containers/container_index.html

Bluechatter Sample App

<https://github.com/IBM-Bluemix/bluechatter>



QUESTIONS

Ryan Baxter - @ryanjbaxter - 11.16.15

