Zero To Cloud Native on IBM Cloud

Microservices Architecture and Design

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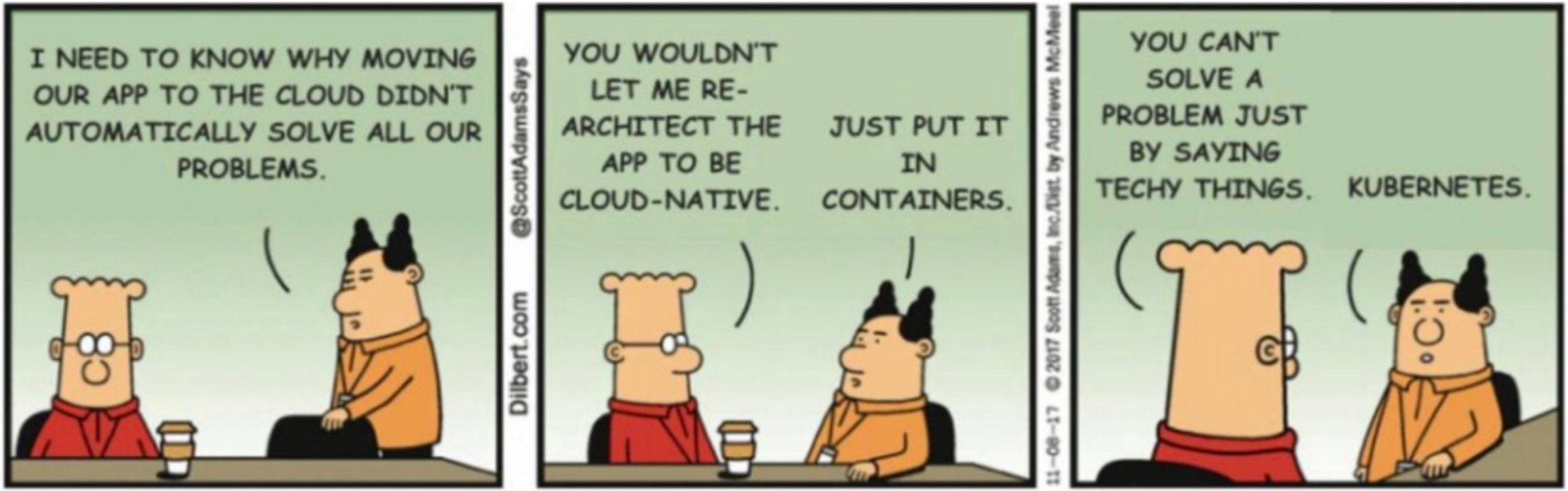
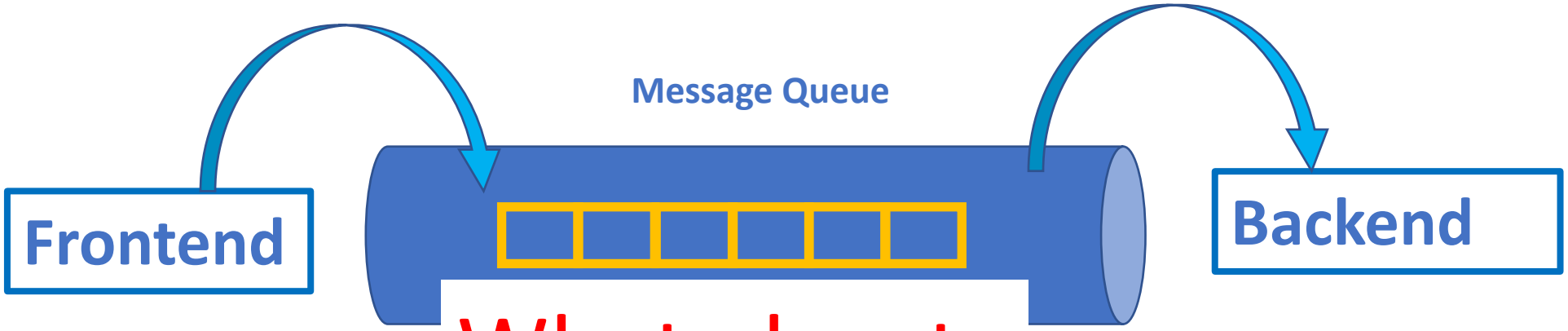

I NEED TO KNOW WHY MOVING OUR APP TO THE CLOUD DIDN'T AUTOMATICALLY SOLVE ALL OUR PROBLEMS.
@ScottAdamsSays
Dilbert.com
YOU WOULDN'T LET ME RE-ARCHITECT THE APP TO BE CLOUD-NATIVE.
JUST PUT IT IN CONTAINERS.
11-08-17 © 2017 Scott Adams, Inc./Dist. by Andrews McMeel
YOU CAN'T SOLVE A PROBLEM JUST BY SAYING TECHY THINGS.
KUBERNETES.

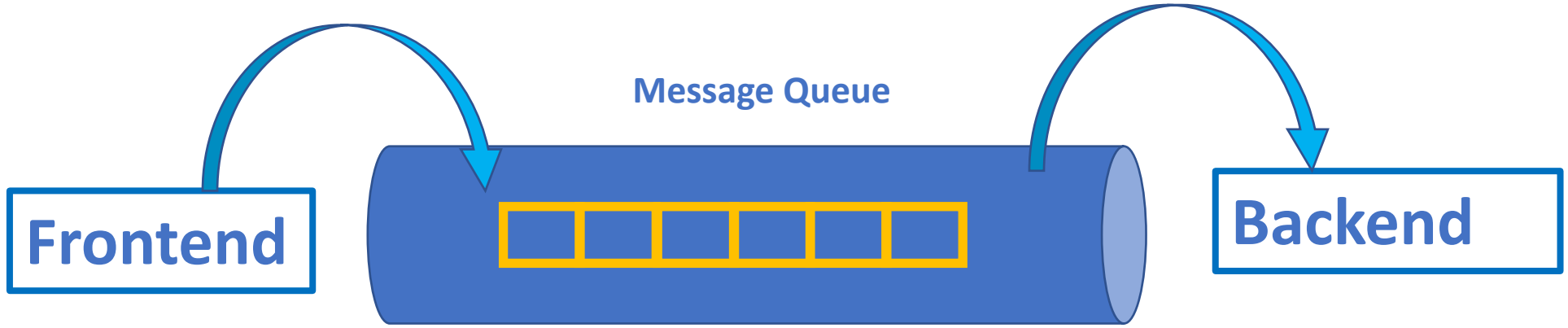
Microservices Resources

Design Patterns for Microservices by Rajesh Bhojwani:
https://dzone.com/articles/design-patterns-for-microservices

Microservices by Martin Fowler.
https://martinfowler.com/articles/microservices.html



What about
real-time
API calls?



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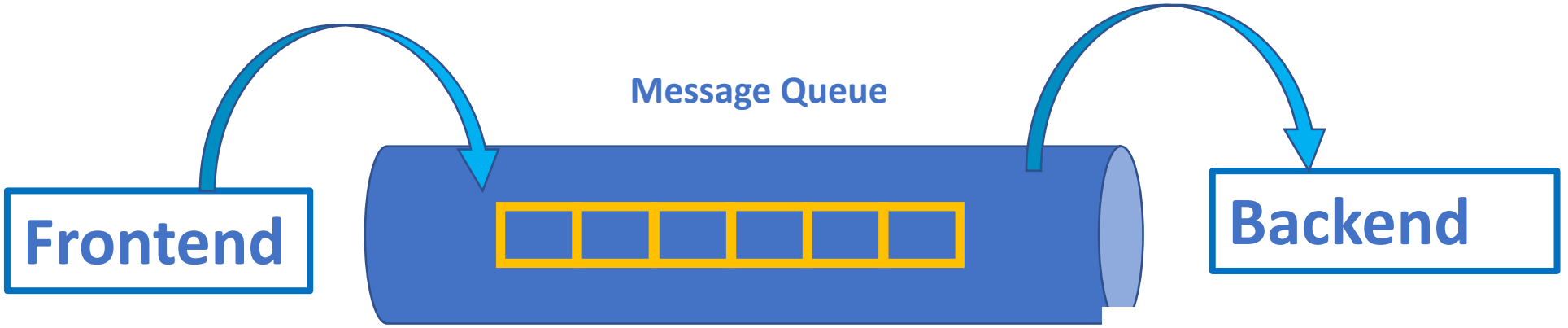
no backend logic!



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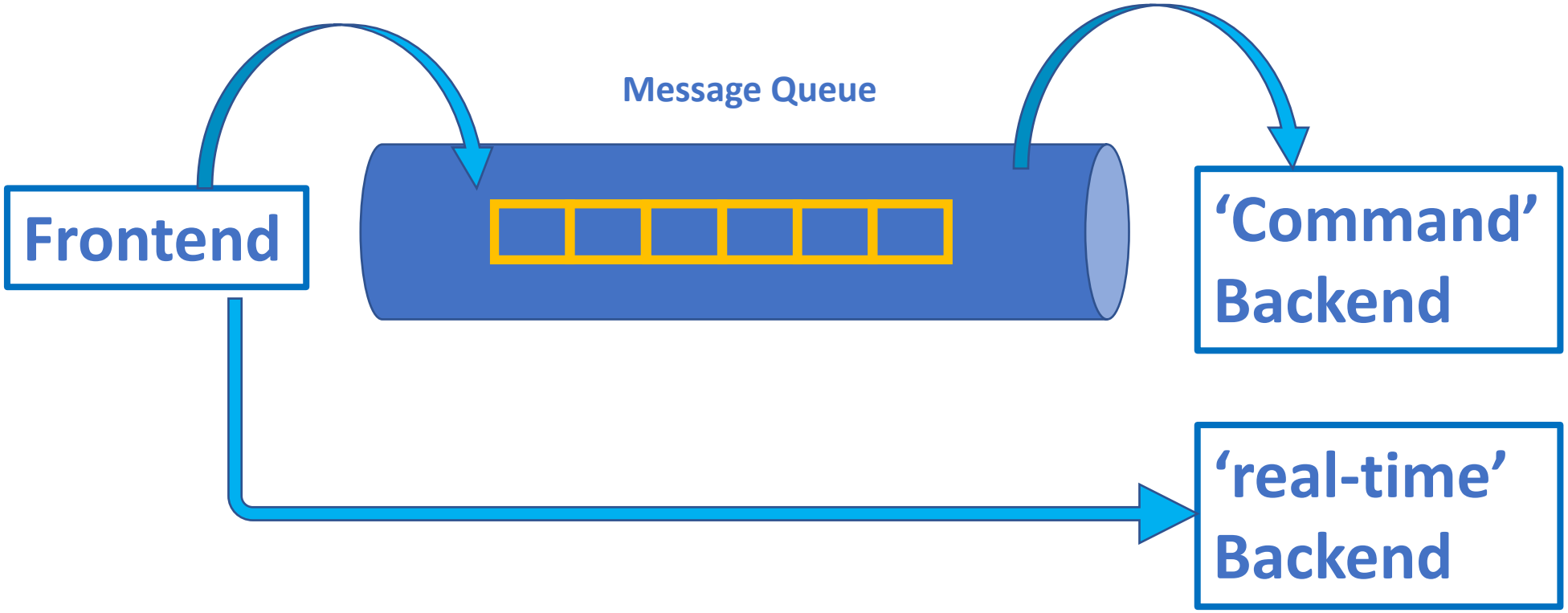
Single bottleneck


Message Queue
Frontend
'Command'
Backend
'real-time'
Backend

Environment Variables Exposes by Kubernetes

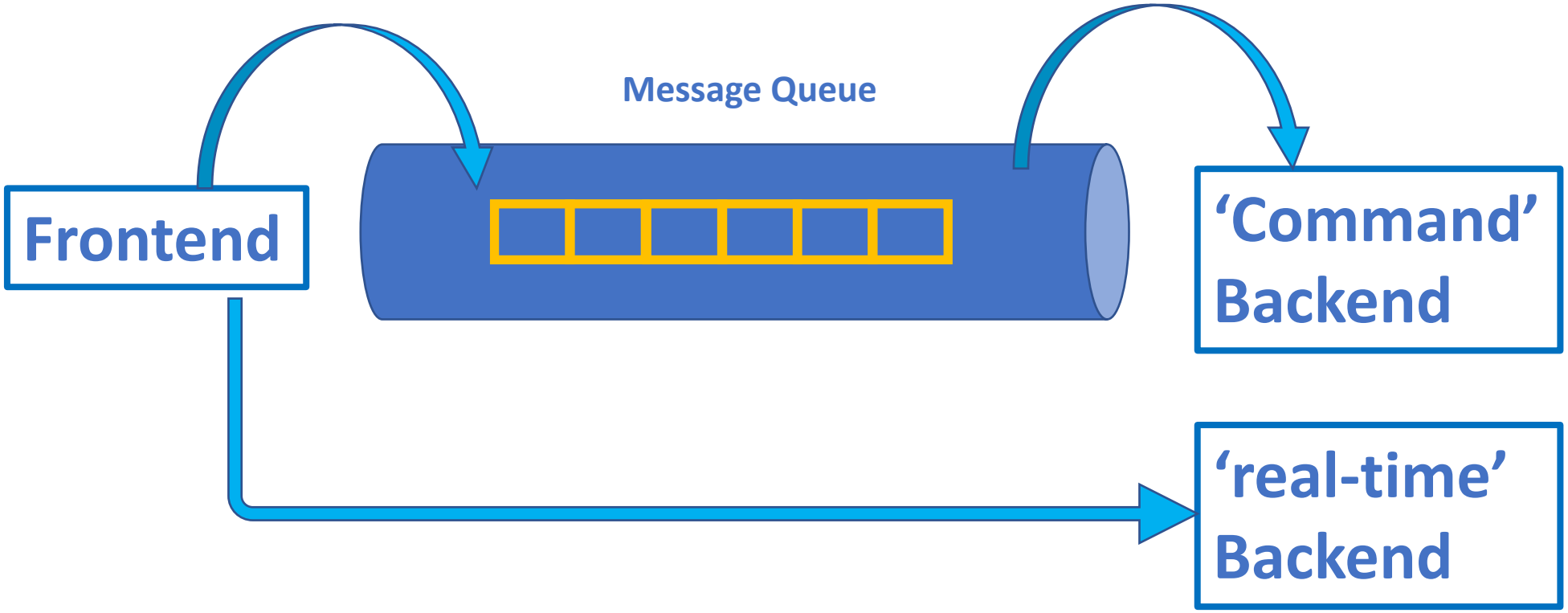
```
# env | grep OPENSHIFT_REALTIME_SERVICE
CLOUDPAK_PROVISIONER_OPENSHIFT_REALTIME_SERVICE_PORT_8220_TCP_ADDR=172.21.131.40
CLOUDPAK_PROVISIONER_OPENSHIFT_REALTIME_SERVICE_PORT_8220_TCP_PORT=8220
CLOUDPAK_PROVISIONER_OPENSHIFT_REALTIME_SERVICE_PORT_8220_TCP_PROTO=tcp
CLOUDPAK_PROVISIONER_OPENSHIFT_REALTIME_SERVICE_SERVICE_HOST=172.21.131.40
CLOUDPAK_PROVISIONER_OPENSHIFT_REALTIME_SERVICE_PORT=tcp://172.21.131.40:8220
CLOUDPAK_PROVISIONER_OPENSHIFT_REALTIME_SERVICE_SERVICE_PORT=8220
CLOUDPAK_PROVISIONER_OPENSHIFT_REALTIME_SERVICE_PORT_8220_TCP=tcp://172.21.131.40:8220
#
```

Example Python Code to Call a Kubernetes Service

```
port = os.environ.get("CLOUDPAK_PROVISIONER_OPENSHIFT_REALTIME_SERVICE_SERVICE_PORT")

url = "http://"+os.environ.get("CLOUDPAK_PROVISIONER_OPENSHIFT_REALTIME_SERVICE_SERVICE_HOST")

openshift_realtime_url = url+":"+port+"/api/v1/getRoksToken/"
```


Message Queue
Frontend
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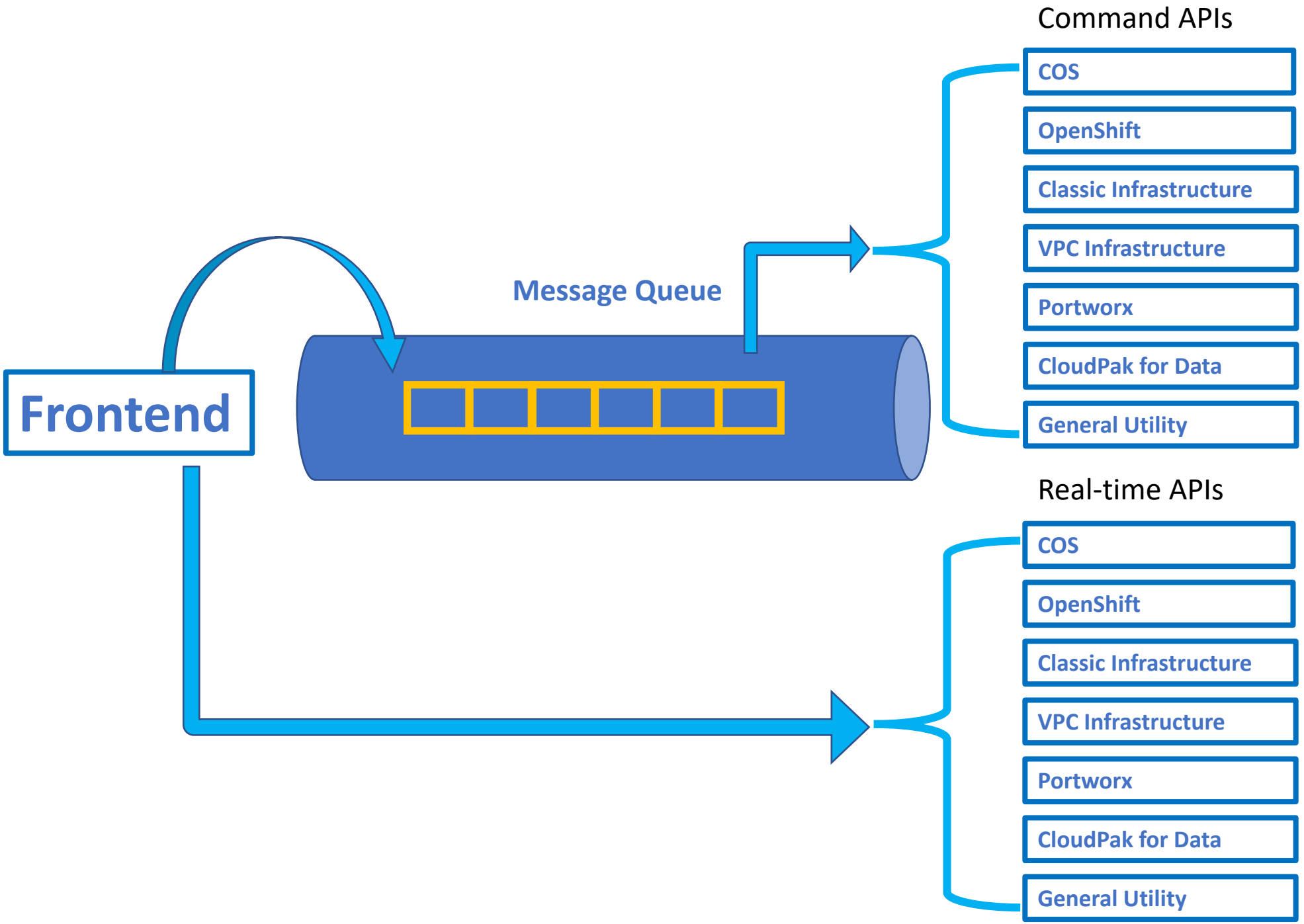
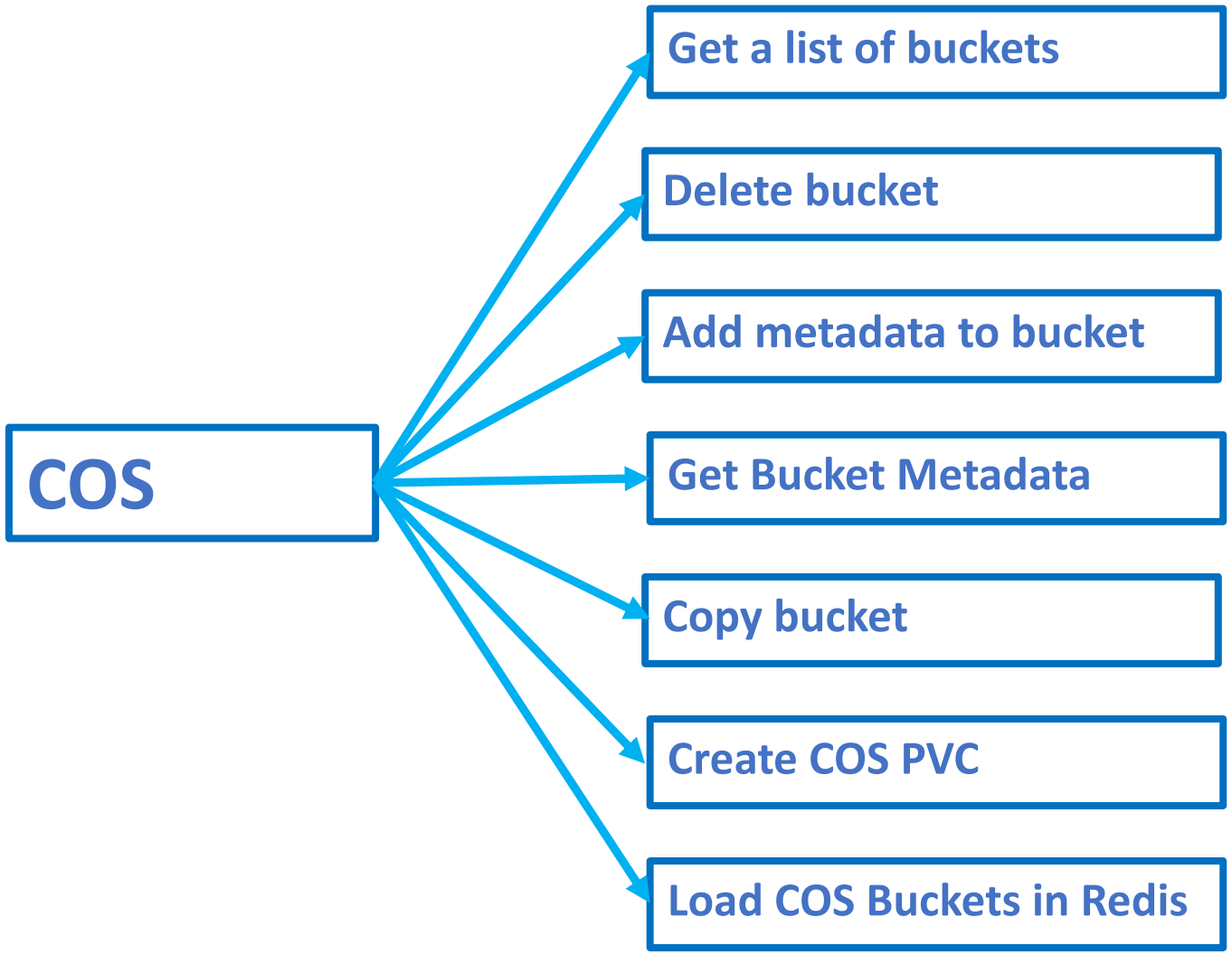
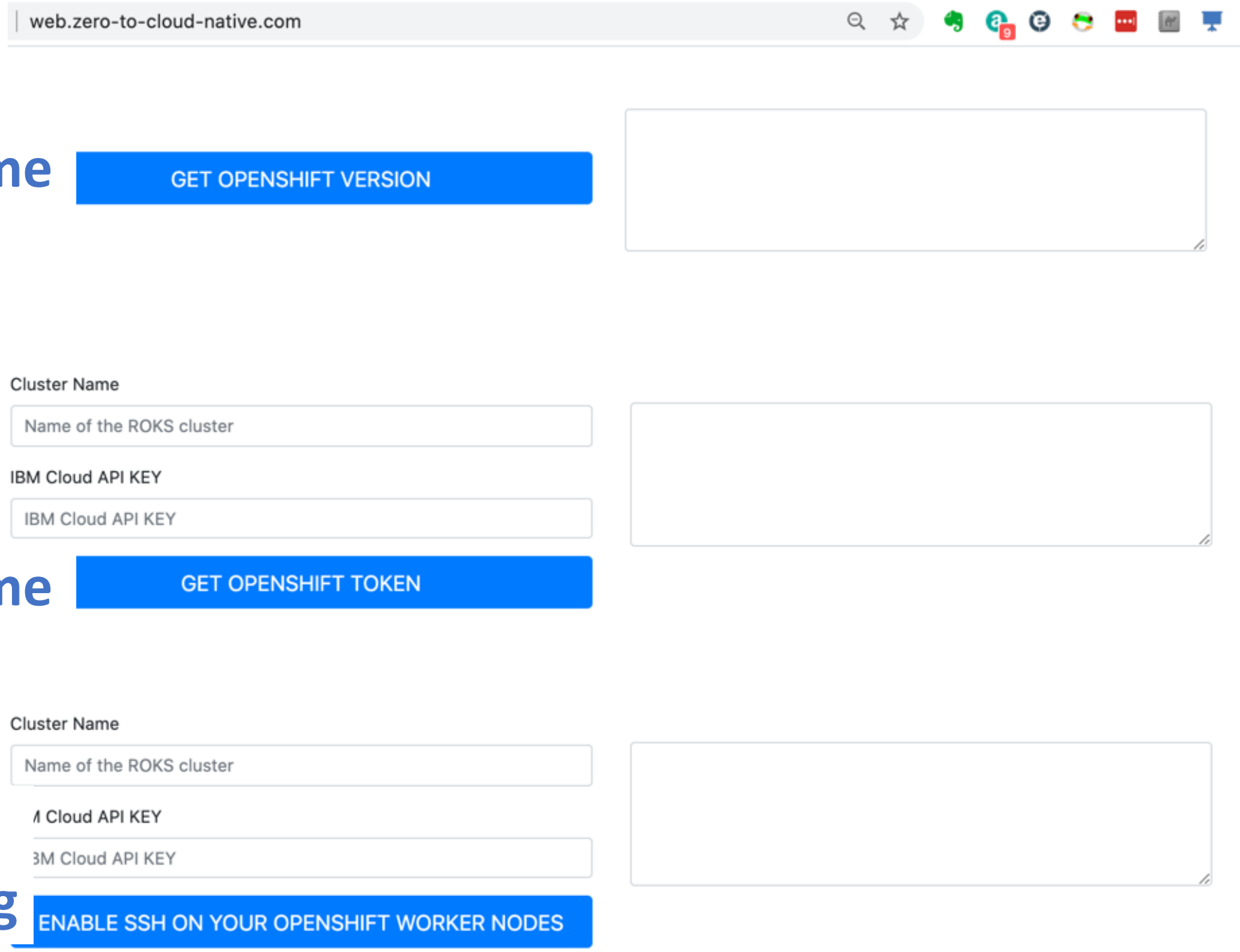
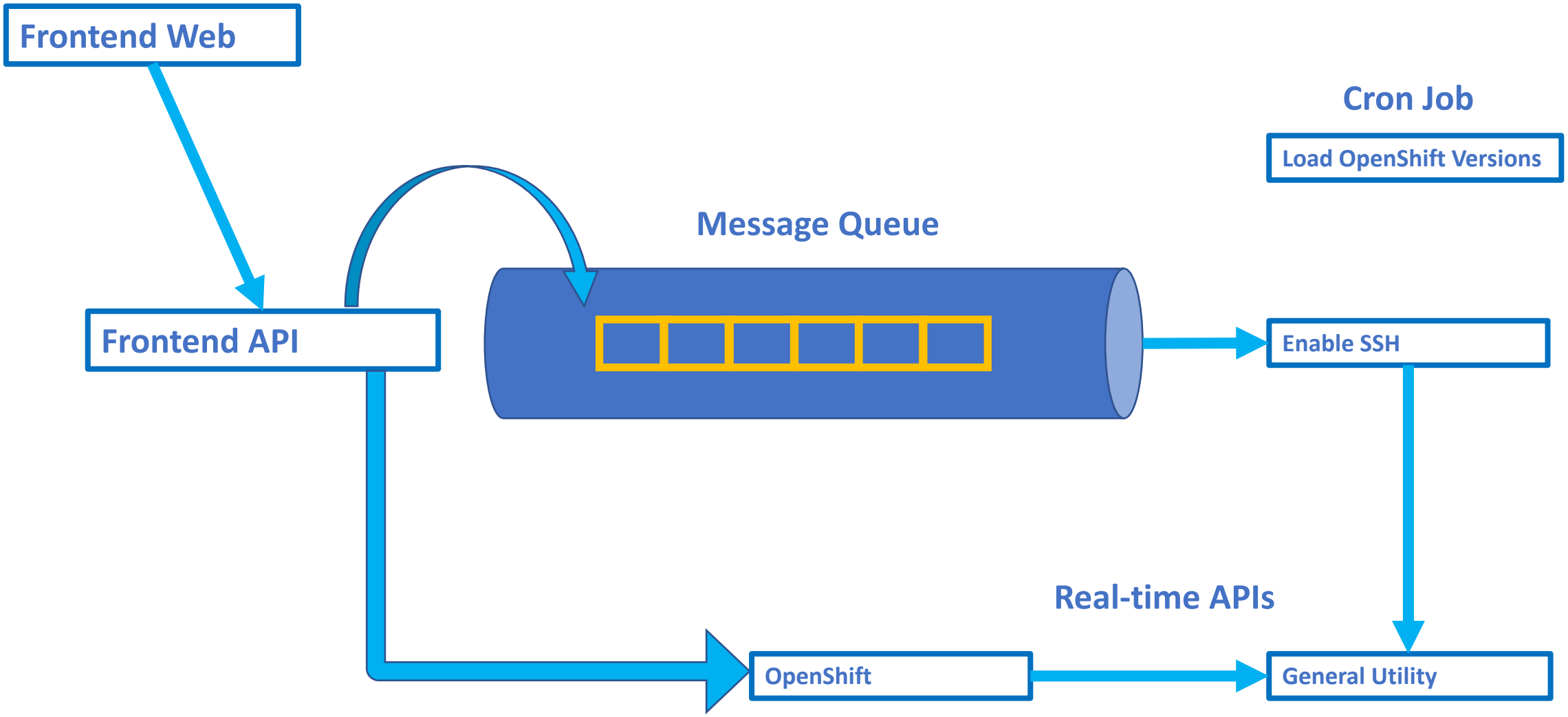

Command APIs
COS
OpenShift
Classic Infrastructure
VPC Infrastructure
Portworx
CloudPak for Data
General Utility
Message Queue
Frontend
Real-time APIs
COS
OpenShift
Classic Infrastructure
VPC Infrastructure
Portworx
CloudPak for Data
General Utility


COS
Get a list of buckets
Delete bucket
Add metadata to bucket
Get Bucket Metadata
Copy bucket
Create COS PVC
Load COS Buckets in Redis


web.zero-to-cloud-native.com
real-time
GET OPENSHIFT VERSION
Cluster Name
Name of the ROKS cluster
IBM Cloud API KEY
IBM Cloud API KEY
real-time
GET OPENSHIFT TOKEN
Cluster Name
Name of the ROKS cluster
Cloud API KEY
3M Cloud API KEY
long running
ENABLE SSH ON YOUR OPENSHIFT WORKER NODES


Frontend Web
Cron Job
Load OpenShift Versions
Message Queue
Frontend API
Enable SSH
Real-time APIs
OpenShift
General Utility