Microservices development using kubernetes

Akash V Gunjal
Squad Lead, Containers Storage, IBM Cloud

Agenda

Presentation

- Cloud features
- Microservices
- Monitoring
- Logging
- Wordpress app demo

Demos

- Microservices using kubernetes
- Monitoring and Logging on IKS

Section divider

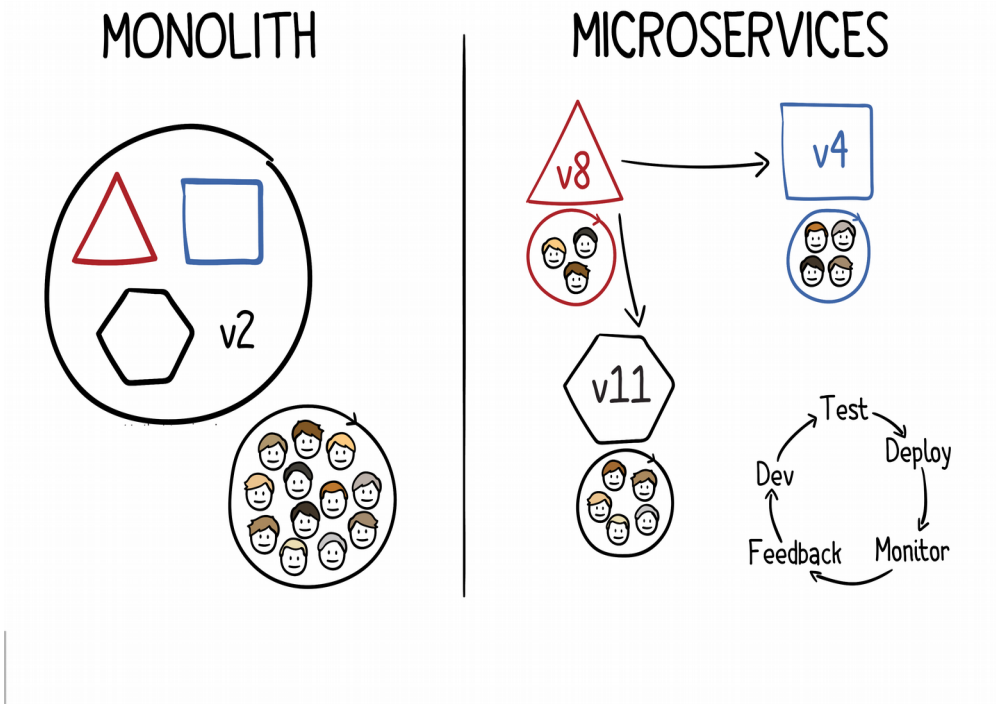
Cloud-Native Development

- Rapid delivery
- Scale to meet demands
- High availability
- Resiliency to failures
- Leverage cloud services for rapid innovation

Microservices

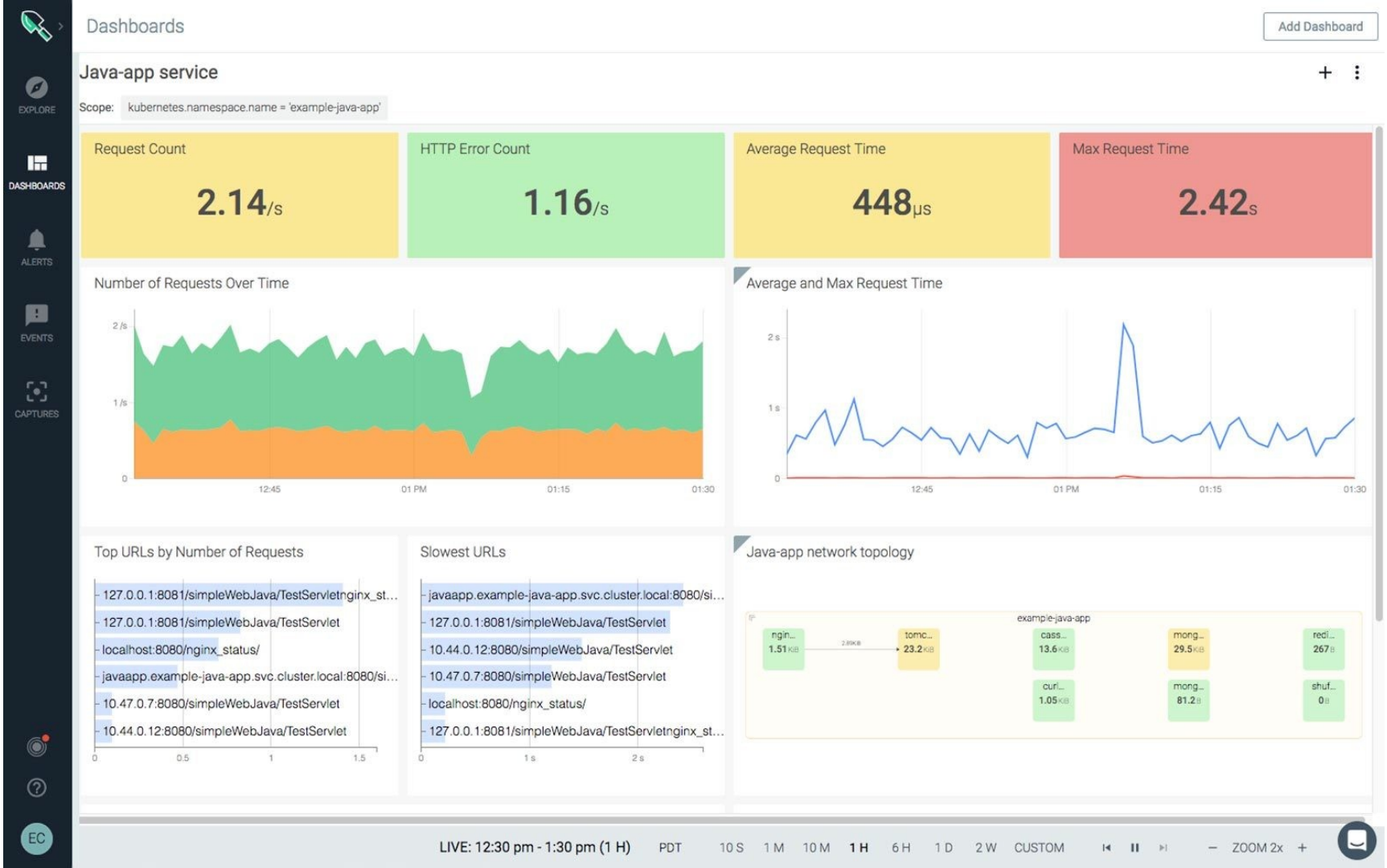
An **engineering approach** focused on **decomposing** an application into **single-function** modules with **well defined interfaces** which are **independently** deployed and operated by a **small team** who owns the **entire lifecycle** of the service.

MicroServices accelerate delivery by **minimizing communication** and coordination between people while **reducing the scope** and risk of change.



Monitoring

IBM Cloud Monitoring with **Sysdig** is a third-party cloud-native container monitoring and troubleshooting system. You can use the Sysdig solution to gain operational visibility into your Kubernetes-based applications, services, and platform. It offers administrators, DevOps teams and developers full stack telemetry with advanced features to monitor and troubleshoot, define alerts, and design custom dashboards.


Dashboards
Add Dashboard
Java-app service
EXPLORE
DASHBOARDS
ALERTS
EVENTS
CAPTURES
Scope: kubernetes.namespace.name = 'example-java-app'
Request Count
2.14/s
HTTP Error Count
1.16/s
Average Request Time
448µs
Max Request Time
2.42s
Number of Requests Over Time
2 /s
1 /s
0
12:45
01 PM
01:15
01:30
Average and Max Request Time
2 s
1 s
0
12:45
01 PM
01:15
01:30
Top URLs by Number of Requests
127.0.0.1:8081/simpleWebJava/TestServletnginx_st...
127.0.0.1:8081/simpleWebJava/TestServlet
localhost:8080/nginx_status/
javaapp.example-java-app.svc.cluster.local:8080/si...
10.47.0.7:8080/simpleWebJava/TestServlet
10.44.0.12:8080/simpleWebJava/TestServlet
0
0.5
1
1.5
Slowest URLs
javaapp.example-java-app.svc.cluster.local:8080/si...
127.0.0.1:8081/simpleWebJava/TestServlet
10.44.0.12:8080/simpleWebJava/TestServlet
10.47.0.7:8080/simpleWebJava/TestServlet
localhost:8080/nginx_status/
127.0.0.1:8081/simpleWebJava/TestServletnginx_st...
0
1 s
2 s
Java-app network topology
example-java-app
ngin...
1.51 KiB
2.89 KiB
tomc...
23.2 KiB
cass...
13.6 KiB
mong...
29.5 KiB
redi...
267 B
curl...
1.05 KiB
mong...
81.2 B
shuf...
0 B
EC
LIVE: 12:30 pm - 1:30 pm (1 H)
PDT
10 S
1 M
10 M
1 H
6 H
1 D
2 W
CUSTOM
ZOOM 2x

Logging

Use IBM Log Analysis with LogDNA to add log management capabilities to your IBM Cloud architecture. IBM Log Analysis with LogDNA is operated by LogDNA in partnership with IBM.

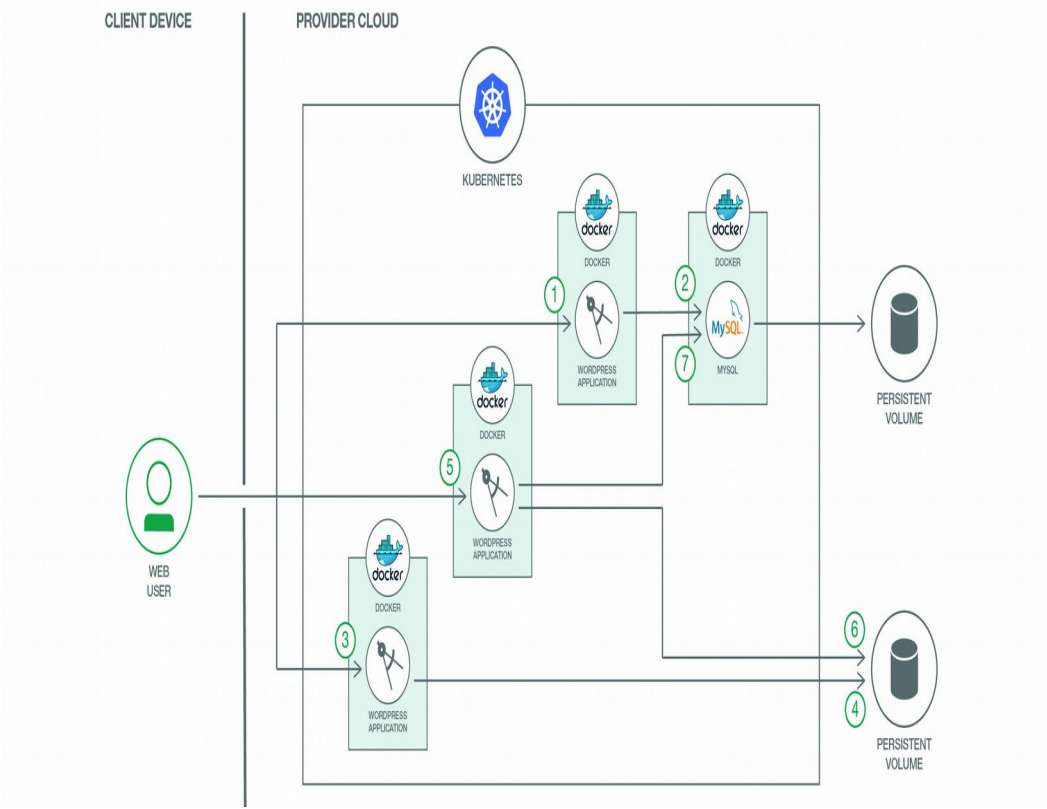
Demo – Wordpress app

WordPress is the world’s most popular website management and blogging system, supporting more than 60 million websites.

This demo shows you how to harness the full power of Kubernetes clusters and demonstrates how easy it is to deploy the world’s most popular website framework on top of world’s most popular container orchestration platform.

Demo – Wordpress app contd…

WordPress represents a typical multi-tier app and each component will have its own containers. The WordPress containers are the front-end tier and the MariaDB container is the database/back-end tier for WordPress. The WordPress front-end tier can use MariaDB as a service.



References

- **Monitoring -** https://cloud.ibm.com/docs/services/Monitoring-with-Sysdig?topic=Sysdig-getting-started
- **Logging -** https://cloud.ibm.com/docs/services/Log-Analysis-with-LogDNA?topic=LogDNA-getting-started
- **Wordpress example** - https://github.com/helm/charts/tree/master/stable/wordpress

Thank you.

Akash V Gunjal

Squad Lead, Containers Storage, IBM Cloud

—

akgunjal@in.ibm.com