



Part 17: Kubernetes Real-Time Troubleshooting

Introduction

Welcome to the world of Kubernetes troubleshooting, where every challenge is an opportunity to sharpen your skills and emerge victorious. Join us as we embark on a journey through common real-time scenarios, unraveling mysteries, and uncovering solutions along the way.



PART 17- KUBERNETES REAL-TIME TROUBLESHOOTING

 Follow

 **kubernetes**

- configMap/Secret Vol Mount Failures
- Ingress TLS certificate Renewal Issue
- Ingress Load Balancer Health check failures - AKS & EKS
- Pod Disruption Budget (PDB) violation
- Custom metrics Server Failure - HPA

Scenario 81: ConfigMap/Secret Volume Mount Failures

kubeedge/kubeedge

#1736 Failed to mount configmap/secret volume because of "no..."



 28 comments

 **GsssC** opened on May 27, 2020





Symptoms: Pods fail to start due to errors mounting ConfigMap or Secret volumes.

Diagnosis: Describe the pod (`kubectl describe pod <pod_name>`) and inspect volume mount logs.

Solution:

1. Ensure that the ConfigMap or Secret exists in the correct namespace and is accessible to the pod.
2. Check for typos or incorrect volume mount paths in the pod's configuration.
3. Validate the permissions and ownership of ConfigMap or Secret files to ensure they are readable by the pod.

Scenario 82: Ingress TLS Certificate Renewal

kubernetes/ingress-nginx

#9306 **Certificate renewal not happening in ingress-nginx...**



4 comments



mahiyad opened on November 15, 2022



Symptoms: TLS certificates used by Ingress resources are expired, causing SSL/TLS handshake failures.

Diagnosis: Check certificate expiration dates (`kubectl describe secret <tls_secret>`) and Ingress controller logs.

Solution:

1. Implement a certificate renewal process using tools like cert-manager or Let's Encrypt.
2. Configure the Ingress controller to reload TLS certificates automatically upon renewal.
3. Monitor certificate expiration dates regularly and renew certificates proactively.



Scenario 83: Ingress Load Balancer Health Check Failures

kubernetes/kubernetes

#80897 Health Checks failed outside of ingress controller AWS NLB



66 comments

Ricewbowler opened on August 2, 2019



kubernetes/ingress-nginx

#10869 AKS load balancer health check fails with ingress-nginx...



12 comments

617msare opened on January 18, 2024



Symptoms: Ingress load balancer health checks fail, leading to intermittent connectivity issues.

Diagnosis: Review load balancer health check logs and metrics.

Solution:

1. Adjust health check settings (e.g., timeouts, intervals) to better match application response times.
2. Ensure that backend services return the expected HTTP status codes (e.g., 200 OK) for health checks.
3. Monitor load balancer health check results and investigate any recurring failures.



Scenario 84: Pod Disruption Budget (PDB) Violation

kubereboot/kured

#82 When Pod Disruption Budget blocks Node draining,...

9 comments

 **kinihun** opened on July 24, 2019



Symptoms: Pods are being terminated beyond allowed disruptions specified by a Pod Disruption Budget.

Diagnosis: Describe the PDB (`kubectl describe pdb <pdb_name>`) and review events related to pod disruptions.

Solution:

1. Increase the `maxUnavailable` parameter in the PDB to allow for more pod disruptions.
2. Adjust application deployment strategies to tolerate more pod disruptions gracefully.
3. Ensure that critical services have sufficient replicas to maintain availability during disruptions.

Scenario 85: Custom Metrics Server Failure

Symptoms: Horizontal Pod Autoscaler (HPA) does not scale pods based on custom metrics.

Diagnosis: Check metrics server logs for errors (`kubectl logs <metrics_server_pod>`) and HPA configuration.

Solution on next page =>

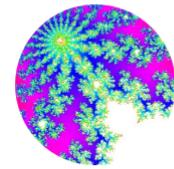


Solution:

1. Ensure that custom metrics are correctly exposed by applications or monitoring agents.
2. Verify that the metrics server is configured to scrape custom metrics endpoints.
3. Check RBAC permissions to ensure the metrics server has sufficient access to collect custom metrics.

docker/for-mac

#2751 The Kubernetes Metrics Server / HPA Custom Metrics Support



21 comments

diclophis opened on March 30, 2018



kubernetes/kubernetes

#91134 hpa is not able to collect metrics from metrics server



5 comments

imchand opened on May 15, 2020





In the up-coming parts, we will discuss on more troubleshooting steps for the different Kubernetes based scenarios. So, stay tuned for the and follow @Prasad Suman Mohan for more such posts.

