Cheatsheet: Kubernetes Monitoring

DATADOG

Cluster state metrics MORE INFO >

DESCRIPTION	NAME IN KUBE-STATE-METRICS	COMMAND
Running pods	kube_pod_status_phase	kubectl get pods
Number of pods desired for a Deployment	kube_deployment_spec_replicas	kubectl get deployment <DEPLOYMENT>
Number of pods desired for a DaemonSet	kube_daemonset_status_desired_number_scheduled	kubectl get daemonset <DAEMONSET>
Number of pods currently running in a Deployment	kube_deployment_status_replicas	kubectl get deployment <DEPLOYMENT>
Number of pods currently running in a DaemonSet	kube_daemonset_status_current_number_scheduled	kubectl get daemonset <DAEMONSET>
Number of pods currently available in a Deployment	kube_deployment_status_replicas_available	kubectl get deployment <DEPLOYMENT>
Number of pods currently available in a DaemonSet	kube_daemonset_status_number_available	kubectl get daemonset <DAEMONSET>
Number of pods currently not available in a Deployment	kube_deployment_status_replicas_unavailable	kubectl get deployment <DEPLOYMENT>
Number of pods currently not available in a DaemonSet	kube_daemonset_status_number_unavailable	kubectl get daemonset <DAEMONSET>

Node resource and status metrics MORE INFO >

DESCRIPTION	NAME IN KUBE-STATE-METRICS	COMMAND
Current health status of a node (kubelet)	kube_node_status_condition	kubectl describe node <NODE_NAME>
Total memory requests (bytes) per node	kube_pod_container_resource_requests_memory_bytes	kubectl describe node <NODE_NAME>
Total memory in use on a node	N/A	kubectl describe node <NODE_NAME>
Total CPU requests (cores) per node	kube_pod_container_resource_requests_cpu_cores	kubectl describe node <NODE_NAME>
Total CPU in use on a node	N/A	kubectl describe node <NODE_NAME>

Job metrics MORE INFO >

DESCRIPTION	NAME IN KUBE-STATE-METRICS	COMMAND
Number of successful jobs	kube_job_status_succeeded	kubectl get jobs --all-namespaces | grep "succeeded"
Number of failed jobs	kube_job_status_failed	kubectl get jobs --all-namespaces | grep "failed"
Number of active jobs	kube_job_status_active	kubectl get jobs --all-namespaces
Number of CronJobs	kube_cronjob_info	kubectl get cronjobs --all-namespaces

Service metrics MORE INFO >

DESCRIPTION	NAME IN KUBE-STATE-METRICS	COMMAND
Service types per cluster	kube_service_info	kubectl get services --all-namespaces
Number of pods running by service	kubectl get pods --selector=<SERVICE_SELECTOR> -o=name	kubectl get jobs --all-namespaces

Container metrics

DESCRIPTION	NAME IN KUBE-STATE-METRICS	COMMAND
Containers running on a pod	kube_pod_container_info	kubectl describe pod <POD_NAME>
Containers restarted on a pod	kube_pod_container_status_restarts_total	kubectl describe pod <POD_NAME>
Containers terminated on a pod	kube_pod_container_status_terminated	kubectl describe pod <POD_NAME>

Disk I/O & Network metrics

DESCRIPTION	PROMETHEUS METRIC NAME	COMMAND
Network in per node	container_network_receive_bytes_total	kubectl get --raw /api/v1/nodes/<NODE_NAME>/proxy/metrics/cadvisor
Network out per node	container_network_transmit_bytes_total	kubectl get --raw /api/v1/nodes/<NODE_NAME>/proxy/metrics/cadvisor
Disk writes per node	container_fs_writes_bytes_total	kubectl get --raw /api/v1/nodes/<NODE_NAME>/proxy/metrics/cadvisor
Disk reads per node	container_fs_reads_bytes_total	kubectl get --raw /api/v1/nodes/<NODE_NAME>/proxy/metrics/cadvisor
Network errors per node	container_network_receive_errors_total, container_network_transmit_errors_total	kubectl get --raw /api/v1/nodes/<NODE_NAME>/proxy/metrics/cadvisor

Kubernetes events MORE INFO >

DESCRIPTION	COMMAND
List events	kubectl get events

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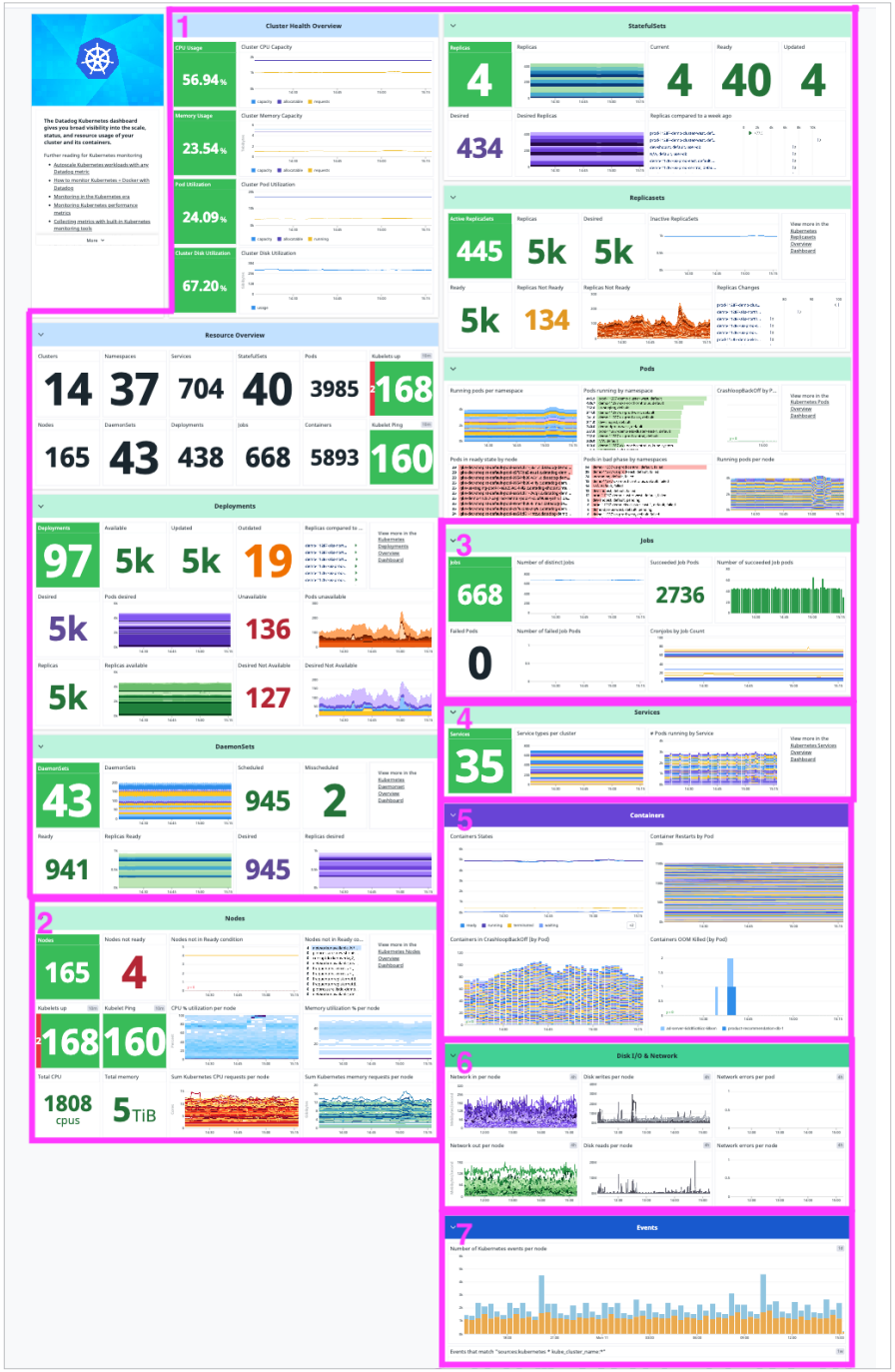

1. Cluster state metrics

METRIC DESCRIPTION	DATADOG STATUS CHECK/METRIC NAME
Running pods	`kubernetes.pods.running`
Number of pods desired for a Deployment	`kubernetes_state.deployment.replicas_desired`
Number of pods desired for a DaemonSet	`kubernetes_state.daemonset.desired`
Number of pods currently running in a Deployment	`kubernetes_state.deployment.replicas`
Number of pods currently running in a DaemonSet	`kubernetes_state.daemonset.scheduled`
Number of pods currently available in a Deployment	`kubernetes_state.deployment.replicas_available`
Number of pods currently available in a DaemonSet	`kubernetes_state.daemonset.ready`
Number of pods currently not available in a Deployment	`kubernetes_state.deployment.replicas_unavailable`
Number of pods currently not available in a DaemonSet	`kubernetes_state.daemonset.desired - kubernetes_state.daemonset.ready`

2. Node resource and status metrics

METRIC DESCRIPTION	DATADOG METRIC NAME
Current health status of a node (kubelet)	`kubernetes.kubelet.check`
Total memory requests (bytes) per node	`kubernetes.memory.requests`
Total memory in use on a node	`kubernetes.memory.usage`
Total CPU requests (cores) per node	`kubernetes.cpu.requests`
Total CPU in use on a node	`kubernetes.cpu.usage.total`

3. Job metrics

METRIC DESCRIPTION	DATADOG METRIC NAME
Number of successful jobs	`kubernetes_state.job.succeeded`
Number of failed jobs	`kubernetes_state.job.failed`
Number of active jobs	`kubernetes_state.job.count`
Number of CronJobs	`kubernetes_state.job.count` (filtered by the `owner_kind:cronjob` tag)

4. Service metrics

METRIC DESCRIPTION	DATADOG METRIC NAME
Service types per cluster	`kubernetes_state.service.count`
Number of pods running by service	`kubernetes.pods.running`

5. Container metrics

METRIC DESCRIPTION	DATADOG METRIC NAME
Containers running on a pod	`kubernetes_state.container.running`
Containers restarted on a pod	`kubernetes_state.container.restarts`
Containers terminated on a pod	`kubernetes_state.container.terminated`

6. Disk I/O & Network metrics

METRIC DESCRIPTION	DATADOG METRIC NAME
Network in per node	`kubernetes.network.rx_bytes`
Network out per node	`kubernetes.network.tx_bytes`
Disk writes per node	`kubernetes.io.write_bytes`
Disk reads per node	`kubernetes.io.read_bytes`
Network errors per node	`kubernetes.network.rx_errors`, `kubernetes.network.tx_errors`

7. Events

Kubernetes events will appear in the Datadog Events Explorer and in event widgets on dashboards