



OpenShift Observability Stack

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Outline

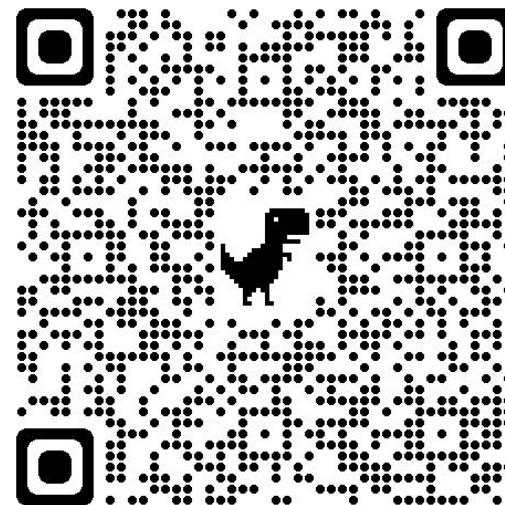
What is Observability?

OpenShift Container Platform monitoring

OpenShift Logging

OpenShift Distributed Tracing

OpenTelemetry



What is Observability?

What? ability to measure a system's internal state based on (telemetry) data

Why? reduce mean time to detect (MTTD) and mean time to remediate (MTTR), optimize performance

How? instrumenting applications with telemetry data

Observability Signals

- ▶ Metrics
- ▶ Logs
- ▶ Traces
- ▶ Profiles

Observability on OpenShift



OpenShift Container Platform monitoring

Dashboards

Time Range

Last 30 minutes

Refresh Interval

30 seconds

Dashboard

etcd

Cluster

etcd

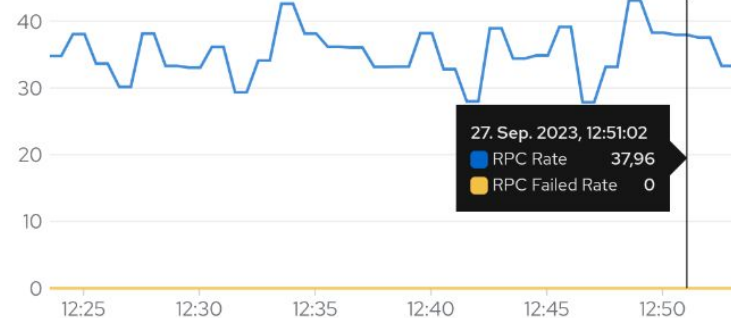
Up

[Inspect](#)

1

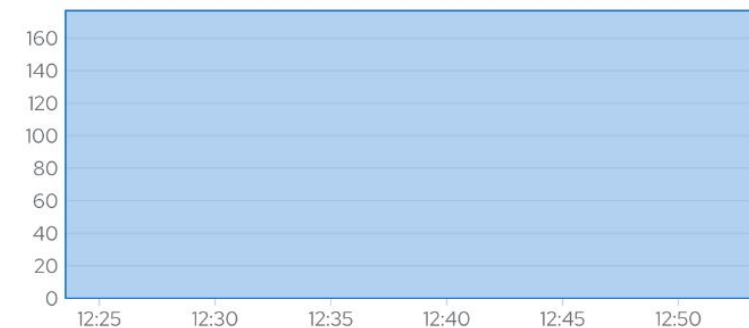
RPC Rate

[Inspect](#)



Active Streams

[Inspect](#)



DB Size

[Inspect](#)

95,37 MiB
76,29 MiB
57,22 MiB
38,15 MiB
19,07 MiB

Disk Sync Duration

[Inspect](#)



Memory

[Inspect](#)

476,8 MiB
381,5 MiB
286,1 MiB
190,7 MiB
95,37 MiB

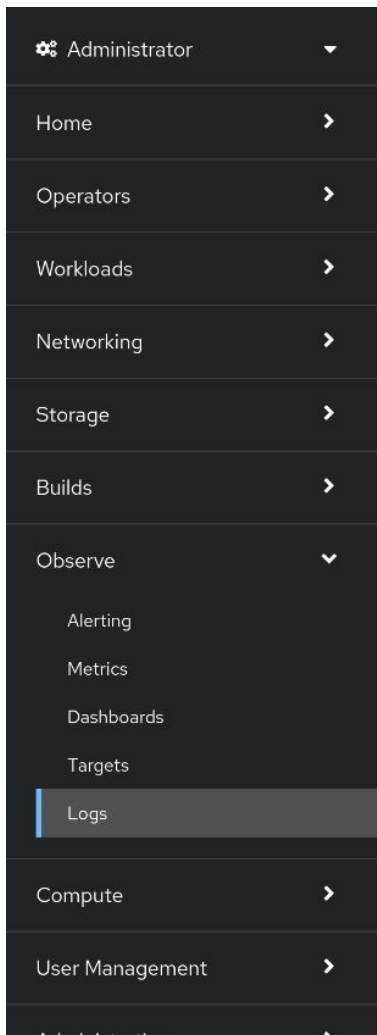
OpenShift Container Platform monitoring

Instrumentation	Prometheus Client libraries
Collection and Storage	Prometheus (Cluster Monitoring Operator / Prometheus Operator)
Visualization	OpenShift Console

OCP Monitoring: Latest Updates & Roadmap

- ▶ [Configure node-exporter collectors](#) (4.13)
- ▶ [Metrics collection profiles](#) (4.13, Technology Preview)
- ▶ Optional built-in monitoring ([planning](#))
- ▶ UTF-8 support for metric and label names ([upstream proposal](#))
- ▶ Native OTLP support: receiving (upstream, 2.47.0) and exporting ([discussion](#))

OpenShift Logging



Logs

[Show Histogram](#)

Last 1 hour

Refresh off



Content Search by Content Severity infrastructure Show Resources Run Query Show Query

Date ↓	Message
> 27. Sep. 2023, 21:32:35.746	I0927 19:21:26.085810 1 task_graph.go:477] Running 16 on worker 0
> 27. Sep. 2023, 21:32:34.734	I0927 19:21:04.047816 1 cvo.go:614] Started syncing cluster version "openshift-cluster-version/version", spec changes, status, and payload
> 27. Sep. 2023, 21:32:34.734	I0927 19:20:49.047940 1 cvo.go:616] Finished syncing cluster version "openshift-cluster-version/version" (462.26µs)
> 27. Sep. 2023, 21:32:34.734	I0927 19:20:49.047883 1 status.go:90] merge into existing history completed=true desired=v1.Release{Version:"4.13.9", Image:"quay.io/crcont/ocp-release@sha256:b89e4a580f6574bcae3591ba29da99810f6bd31f29da778e402cc83c8e60d5bb", URL:"https://access.redhat.com/errata/RHSA-2023:4603", Channels:[]string(nil)} last=&v1.UpdateHistory{State:"Completed", StartedTime:time.Date(2023, time.August, 24, 2, 53, 50, 0, time.Local), CompletionTime:time.Date(2023, time.August, 24, 3, 19, 45, 0, time.Local), Version:"4.13.9", Image:"quay.io/crcont/ocp-release@sha256:b89e4a580f6574bcae3591ba29da99810f6bd31f29da778e402cc83c8e60d5bb", Verified:false, AcceptedRisks:""}
▼ 27. Sep. 2023, 21:32:34.734	I0927 19:20:49.047804 1 status.go:170] Synchronizing status errs=field.ErrorList(nil) status=&cvo.SyncWorkerStatus{Generation:5, Failure:error(nil), Done:785, Total:900, Completed:61, Reconciling:true, Initial:false, VersionHash:"vC6jwb5wHrI=", Architecture:"amd64", LastProgress:time.Date(2023, time.September, 27, 19, 18, 26, 247646526, time.Local), Actual:v1.Release{Version:"4.13.9", Image:"quay.io/crcont/ocp-release@sha256:b89e4a580f6574bcae3591ba29da99810f6bd31f29da778e402cc83c8e60d5bb", URL:"https://access.redhat.com/errata/RHSA-2023:4603", Channels:[]string(nil)}, Verified:false, loadPayloadStatus:cvo.LoadPayloadStatus{Step:"PayloadLoaded", Message:"Payload loaded version=\"4.13.9\" image=\"quay.io/crcont/ocp-release@sha256:b89e4a580f6574bcae3591ba29da99810f6bd31f29da778e402cc83c8e60d5bb\" architecture=\"amd64\"", Force:false}, Verified:false, Local:true, LastTransitionTime:time.Time{wall:0xc13d312042cb75aa, ext:330544826947, loc:(*time.Location)(0x2feeb20)}}, CapabilitiesStatus:cvo.CapabilityStatus{Status:v1.ClusterVersionCapabilitiesStatus{EnabledCapabilities:[]v1.ClusterVersionCapability{"Console", "marketplace", "openshift-samples"}, KnownCapabilities:[]v1.ClusterVersionCapability{"CSISnapshot", "Console", "Insights", "NodeTuning", "Storage", "baremetal", "marketplace", "openshift-samples"}}, ImplicitlyEnabledCaps:[]v1.ClusterVersionCapability(nil)}}

_timestamp 2023-09-27T19:20:49.047835768Z

file /var/log/pods/openshift-cluster-version_cluster-version-operator-7cb69b697b-wrkjr_a77ffbbe-b972-42b6-8e52-de3477cfa296/cluster-version-operator/5.log

hostname crc-mmwz7-master-0

kubernetes_annotations_open hostaccess
shift_io_scc

kubernetes container id cri-o://a78b2766c3156338ede769f9456c57f4a1e797c59829c29585cc6d7a675b1119

kubernetes container image quay.io/crcont/ocp-

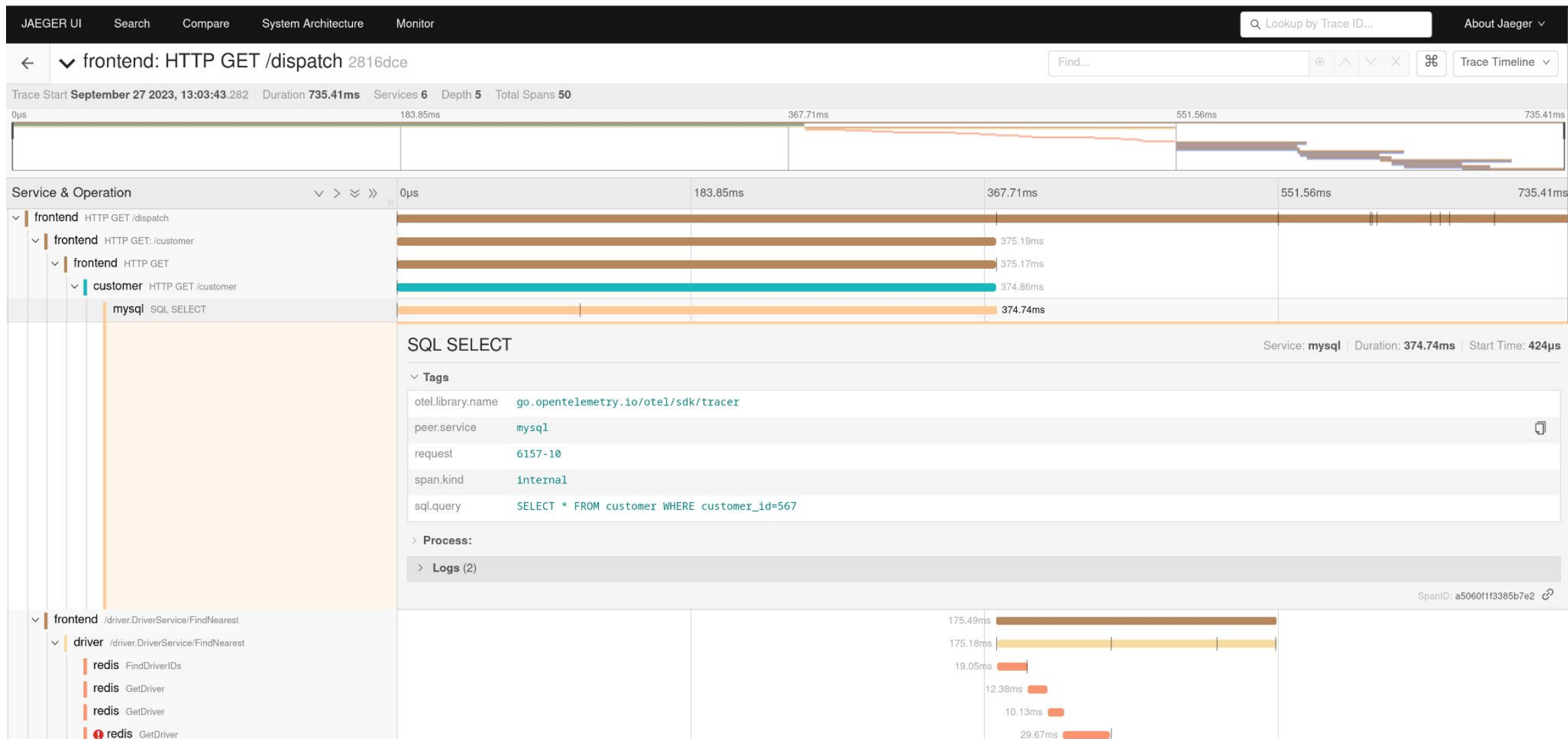
OpenShift Logging

	Legacy	Recommendation
Instrumentation	stdout	stdout
Collection	Fluentd (OpenShift Logging Operator)	Vector (OpenShift Logging Operator)
Storage	ElasticSearch (ElasticSearch Operator) <i>block storage</i>	Grafana Loki (Loki Operator) <i>object storage</i>
Visualization	Kibana (OpenShift Logging Operator)	OpenShift Console

OpenShift Logging: Latest Updates

- ▶ [Elasticsearch Operator deprecated](#) (5.4)
- ▶ [Fluentd deprecated](#) (5.6)
- ▶ [Detect multi-line exceptions](#) (5.7)
- ▶ [Log based alerting](#) (5.7)

OpenShift Distributed Tracing



OpenShift Distributed Tracing

	Legacy	Recommendation
Instrumentation	OpenTracing/Jaeger or Zipkin	OpenTelemetry, Jaeger, OpenCensus or Zipkin
Collection		OpenTelemetry Collector (OpenShift distributed tracing data collection operator)
Storage	Jaeger (OpenShift distributed tracing platform operator) ElasticSearch (ElasticSearch Operator) <i>block storage</i>	Grafana Tempo (Tempo Operator) <i>object storage</i>
Visualization	Jaeger UI (OpenShift distributed tracing platform operator)	Jaeger UI (Tempo Operator) OpenShift Console (planned)

OpenShift Distributed Tracing: Tempo Operator

- ▶ Resource Limits
- ▶ AuthN and AuthZ
- ▶ Managed upgrades
- ▶ Multitenancy
- ▶ mTLS
- ▶ Jaeger UI
- ▶ Observability

OpenShift Distributed Tracing: Roadmap

- ▶ Distributed Tracing 3.0 (GA) (in development)
- ▶ [Service Performance Monitoring](#) (3.0)
- ▶ Tracing integration in OpenShift Console (in development)
- ▶ ARM support (in development)
- ▶ Support Tempo monolith deployment (planning)

OpenTelemetry

- ▶ SDK, Data Model, semantic conventions ("k8s.pod.name")
- ▶ Protocol (OTLP)
- ▶ Collector (receive, process and export telemetry data)

OpenShift distributed tracing data collection

Receivers	Exporters	Processors	Extensions	Connectors
OTLP	OTLP	Batch	zPages	Span Metrics
Jaeger	Logging	Memory Limiter	Ballast	
OpenCensus	Prometheus	Attribute	Jaeger Remote Sampling	
Zipkin	Kafka*	Resource	Health Check	
Prometheus*		Span	pprof	
Hostmetrics*		k8s Attributes	OAuth2 Client Auth	
Kafka*		Resource Detection	Bearer Token Auth	
		Filter		
		Routing		

OpenTelemetry: Roadmap

- ▶ Enable Prometheus and Host Metrics receiver (3.0)
- ▶ Enable Kafka Receiver and Exporter (3.0)
- ▶ ARM support (in development)
- ▶ Distributed collector configuration (planning)
- ▶ Support exporting all telemetry data from OpenShift (planning)

Q & A



Thank you

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