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2023 · 上海

SkyWalking Summit





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“ SkyWalking V9 In 2023
- 5 featured releases ”

01

eBPF Stack

eBPF Stack Support

The screenshot displays the SkyWalking eBPF Profiling interface. At the top, the service is identified as 'agentless::recommendation'. Below this, a blue banner states: 'eBPF Profiling support services written in C, C++, Golang, and Rust. SkyWalking Rover provides this profiling capability.'

The main section is titled 'eBPF Profiling' and includes a 'Task List' sidebar on the left. The task list shows 'ON_CPU: mesh-envoy' with a time range of '2022-06-07 09:47:13 ~ 2022-06-07 09:52:21'. There are buttons for 'Click to select processes' and 'Analyze', and a 'New Task' button in the top right.

The central area shows a call stack visualization. The root of the stack is 'Virtual Root'. A tooltip is visible over a node, displaying the following information:

- Symbol: Envoy::Network::ConnectionImpl::onFileEvent(unsigned int)
- Dump Count: 6
- Percentage Of Selected: 7.595%
- Percentage Of Root: 7.595%

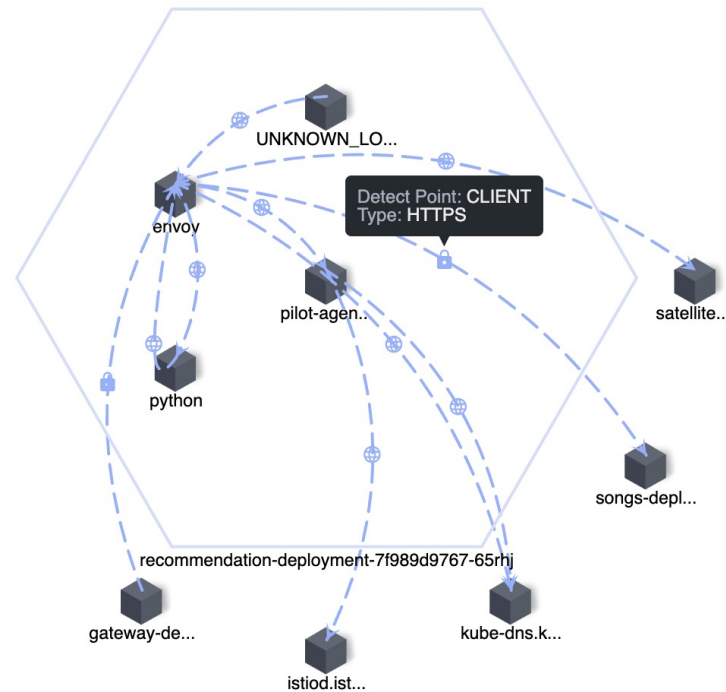
The call stack includes various system and application functions such as 'main', 'do_syscall_64', 'event_base_loop', 'schedule_hrtime', and 'http_pars...'. The stack is visualized with horizontal bars of different colors representing different levels of the call stack.

eBPF Network Profiling

Envoy Proxy Envoy Log [Network Profiling](#) 📄

Network Profiling

Task List	
2022-08-30 16:10:08	2022-08-30 17:20:08
2022-08-30 15:37:19	2022-08-30 16:17:19



02

Ecosystem Enhancement

World Industry First – Native Go Agent

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Tracing Plugins

The following plugins provide the distributed tracing capability, and the OAP backend would analyze the topology and metrics based on the tracing data.

- HTTP Server
 - gin : Gin tested v1.7.0 to v1.9.0.
 - http : Native HTTP tested go v1.17 to go v1.20.
 - go-restfulv3 : Go-Restful tested v3.7.1 to 3.10.2.
 - mux : Mux tested v1.7.0 to v1.8.0.
 - iris : Iris tested v12.1.0 to 12.2.5.
 - fasthttp : FastHttp tested v1.10.0 to v1.50.0.
 - fiber : Fiber tested v2.49.0 to v2.50.0.
- HTTP Client
 - http : Native HTTP tested go v1.17 to go v1.20.
 - fasthttp : FastHttp tested v1.10.0 to v1.50.0.
- RPC Frameworks
 - dubbo : Dubbo tested v3.0.1 to v3.0.5.
 - kratosv2 : Kratos tested v2.3.1 to v2.6.2.
 - microv4 : Go-Micro tested v4.6.0 to v4.10.2.
 - grpc : gRPC tested v1.55.0 to v1.57.0.
- Database Client
 - gorm : GORM tested v1.22.0 to v1.25.1.
 - MySQL Driver
 - mongo : Mongo tested v1.11.1 to v1.11.7.
 - sql : Native SQL tested go v1.17 to go v1.20.
 - MySQL Driver tested v1.4.0 to v1.7.1.
- Cache Client
 - go-redisv9 : go-redis tested v9.0.3 to v9.0.5.

Metrics Plugins

The meter plugin provides the advanced metrics collections.



- runtimeMetrics : Native Runtime Metrics tested go v1.17 to go v1.20.

Logging Plugins

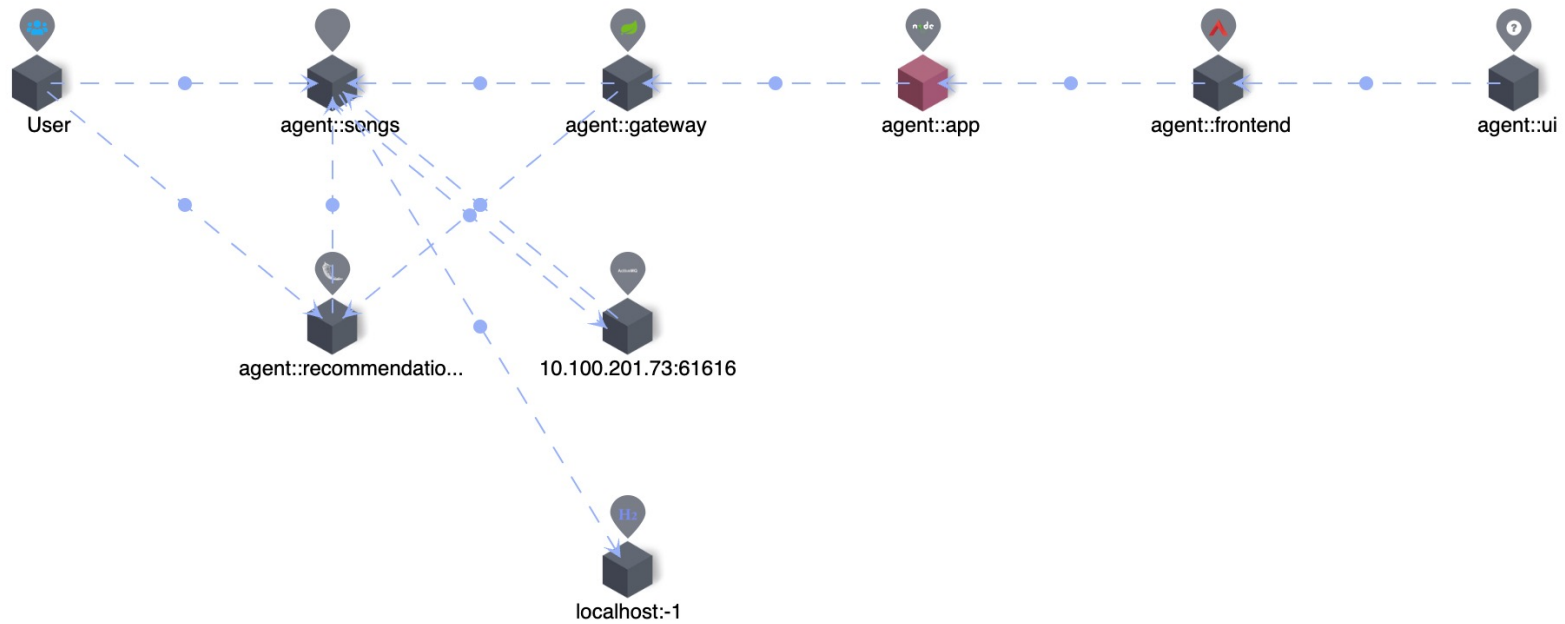
The logging plugin provides the advanced logging collections.

- logrus : Logrus tested v1.8.2 to v1.9.3.
- zap : Zap tested v1.17.0 to v1.24.0.

New Topology Layout

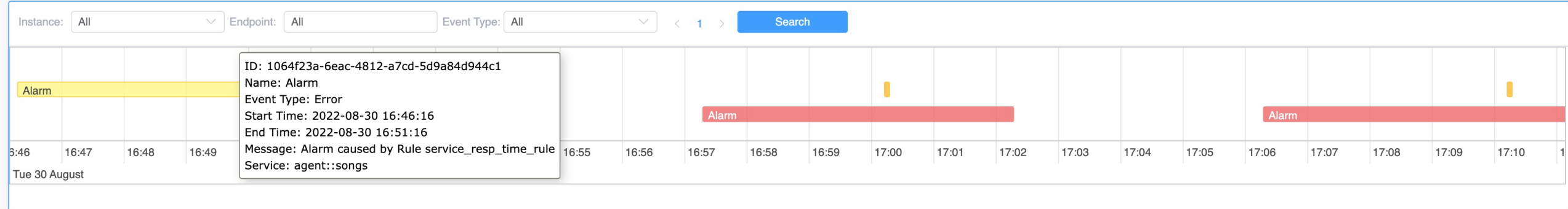
-  Healthy
-  Success Rate < 95% and Traffic > 1 calls / min

Current Depth 

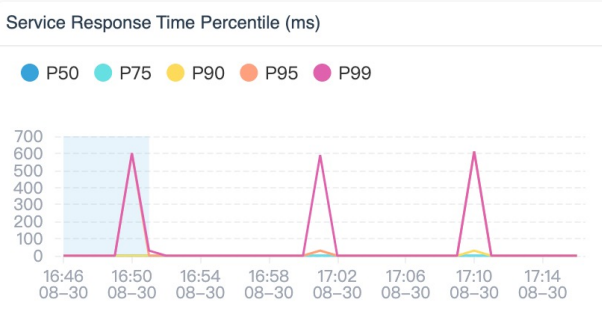
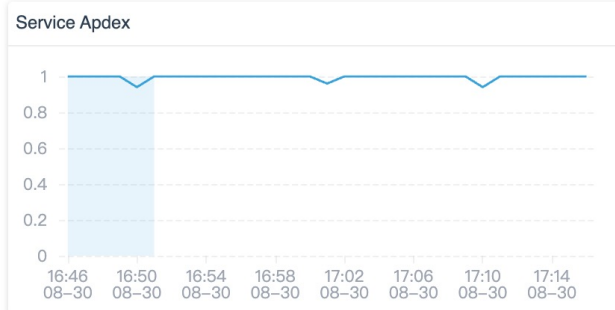
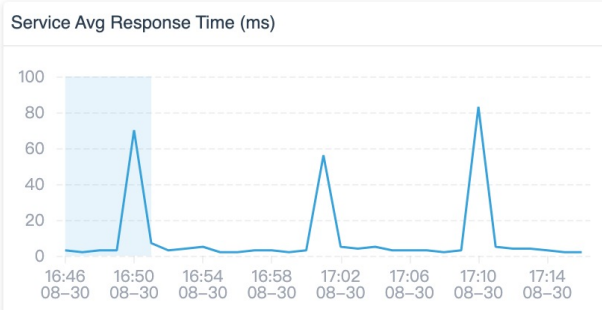
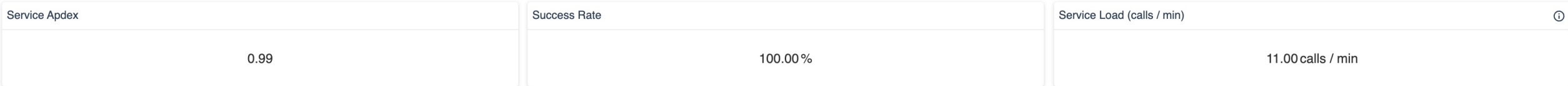


Event and Metrics Association

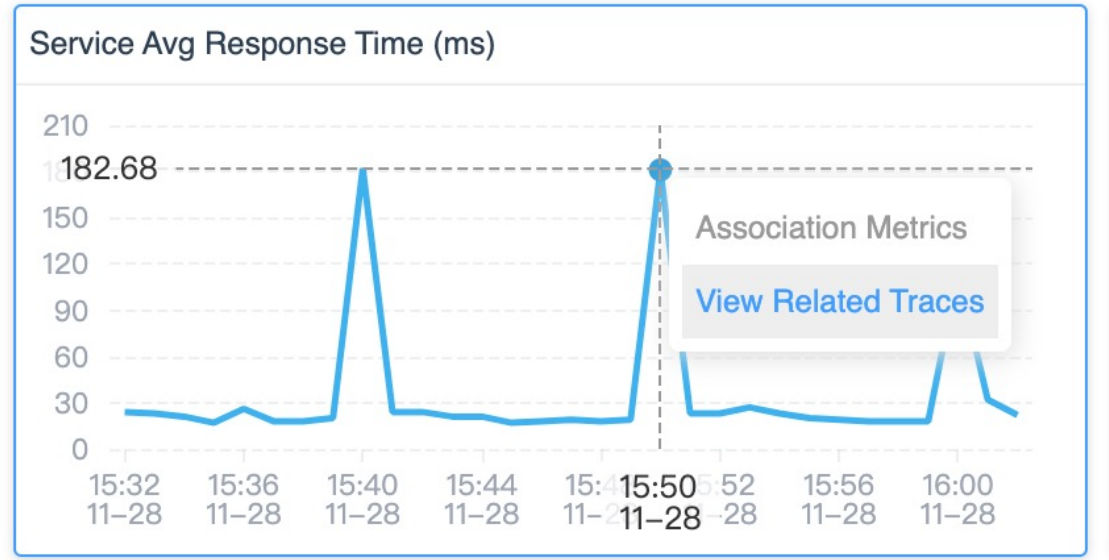
\$Service agent::songs



- Overview
- Instance
- Endpoint
- Topology
- Trace
- Trace Profiling
- eBPF Profiling
- Log
- 📄



Trace and Metrics Association



Query Order: Latency

Tags:

Configuration Vocabulary page ?

Query Conditions

- Status: ALL
- Query Order: BY_DURATION
- Minimum Duration: 181
- Maximum Duration: Infinity

< 1 >

[/homepage](#)

1784 ms 2022-

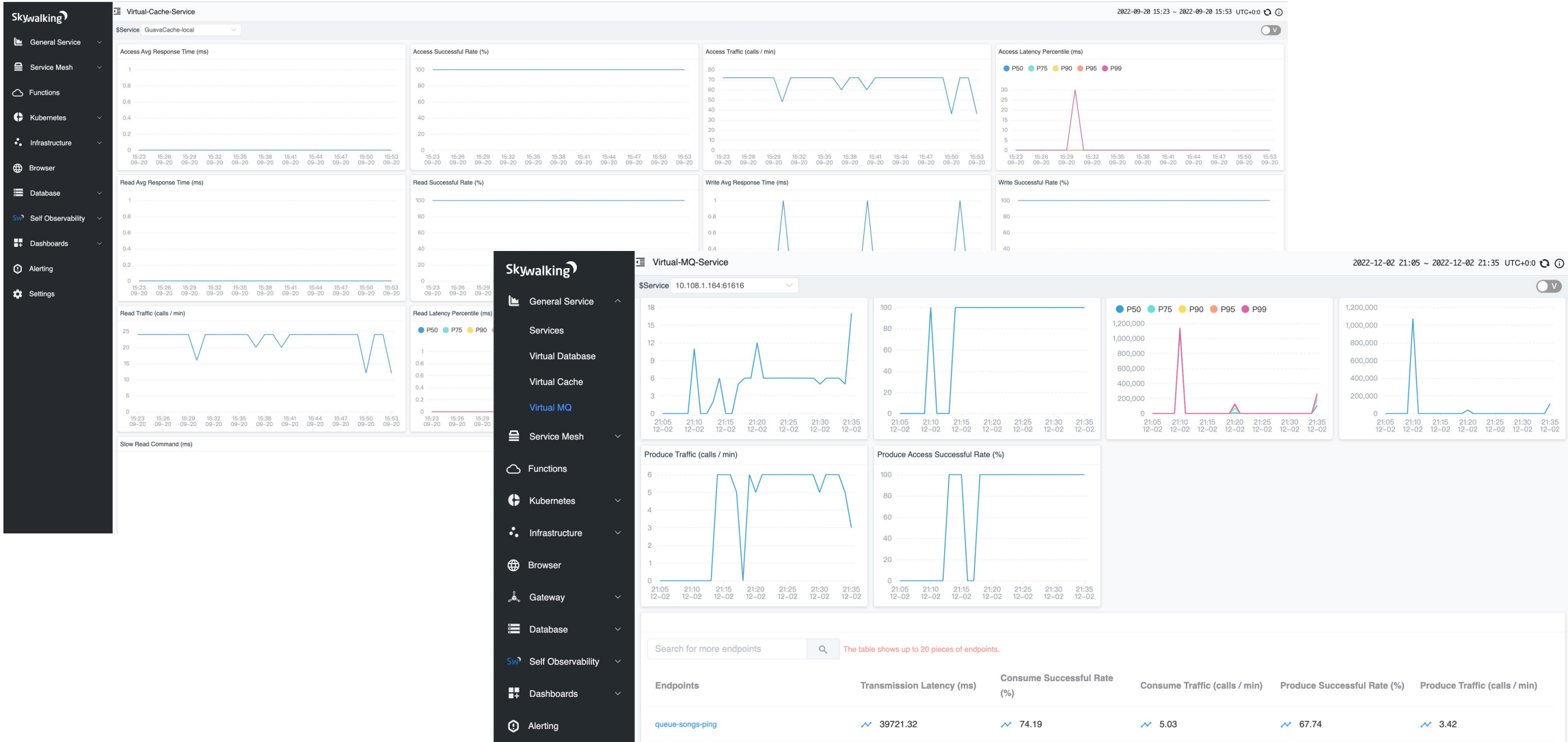
/homepage

3dff93c6-e6d1-4261-a47b-8f4720501141

Start 2022-11-28 15:50:29 Duration 1784 ms

agent::ui agent::frontend agent::app

Virtual Cache and MQ



MQE And New Alerting Kernel

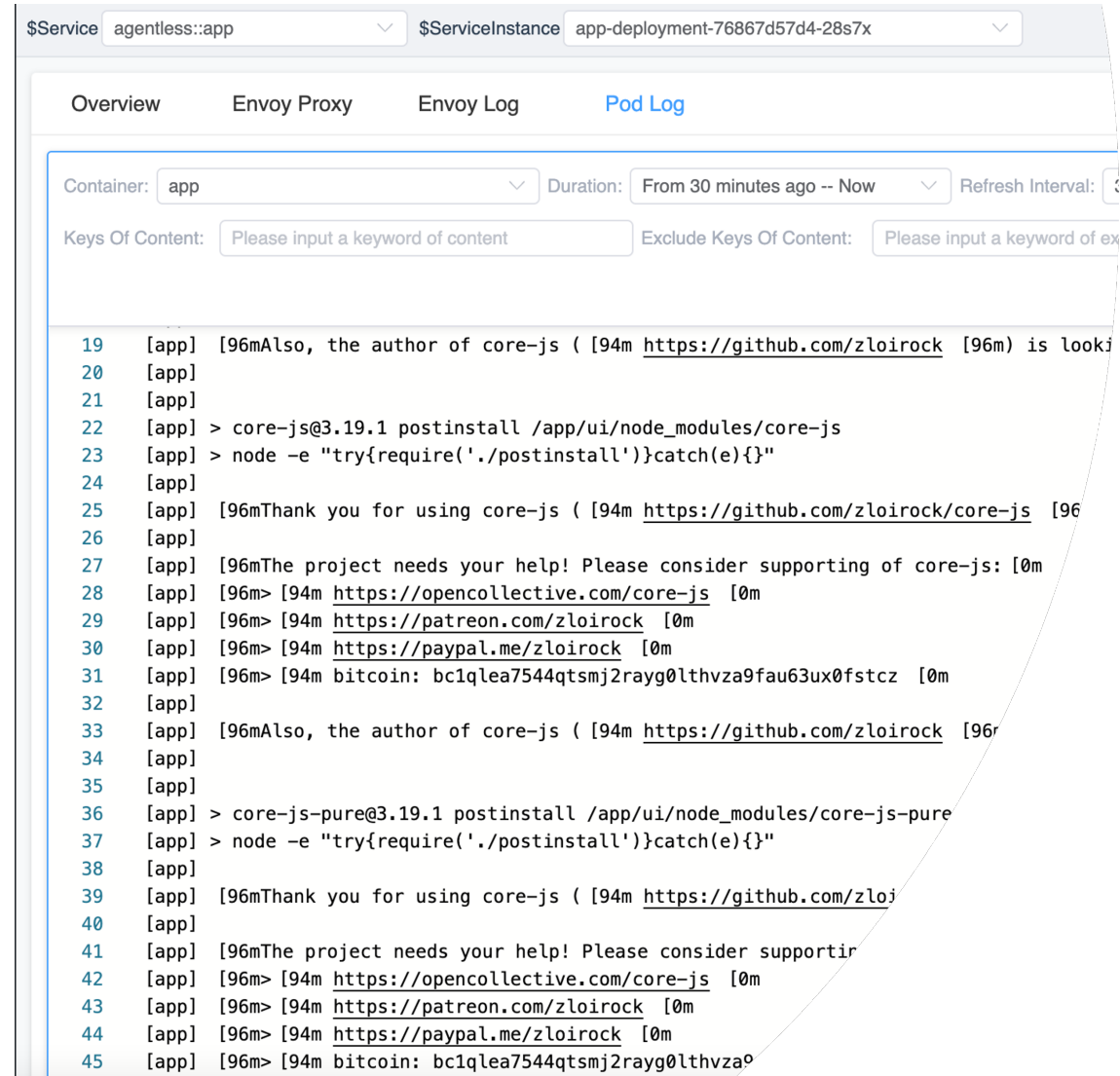
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```
rules:
# Rule unique name, must be ended with `_rule`.
endpoint_percent_rule:
# A MQE expression and the root operation of the expression must be a Compare Operation.
expression: sum((endpoint_sla / 100) < 75) >= 3
# The length of time to evaluate the metrics
period: 10
# How many times of checks, the alarm keeps silence after alarm triggered, default as same as period.
silence-period: 10
message: Successful rate of endpoint {name} is lower than 75%
tags:
  level: WARNING
service_percent_rule:
expression: sum((service_sla / 100) < 85) >= 4
# [Optional] Default, match all services in this metrics
include-names:
  - service_a
  - service_b
exclude-names:
  - service_c
period: 10
message: Service {name} successful rate is less than 85%
service_resp_time_percentile_rule:
expression: sum(service_percentile{_='0,1,2,3,4'} > 1000) >= 3
period: 10
silence-period: 5
message: Percentile response time of service {name} alarm in 3 minutes of last 10 minutes, due to more than one condition of p50 > 1000, p75 > 1000, p90 > 1000, p95 > 1000, p99 > 1000
meter_service_status_code_rule:
expression: sum(aggregate_labels(meter_status_code{_='4xx,5xx'},sum) > 10) > 3
period: 10
count: 3
silence-period: 5
message: The request number of entity {name} 4xx and 5xx status is more than expected.
hooks:
  - "slack.custom1"
  - "pagerduty.custom1"
comp_rule:
expression: (avg(service_sla / 100) > 80) * (avg(service_percentile{_='0'}) > 1000) == 1
period: 10
message: Service {name} avg successful rate is less than 80% and P50 of avg response time is over 1000ms in last 10 minutes.
tags:
  level: CRITICAL
hooks:
  - "slack.default"
  - "slack.custom1"
  - "pagerduty.custom1"
```


03

Infra and Cloud Datasources

On-demand Logs



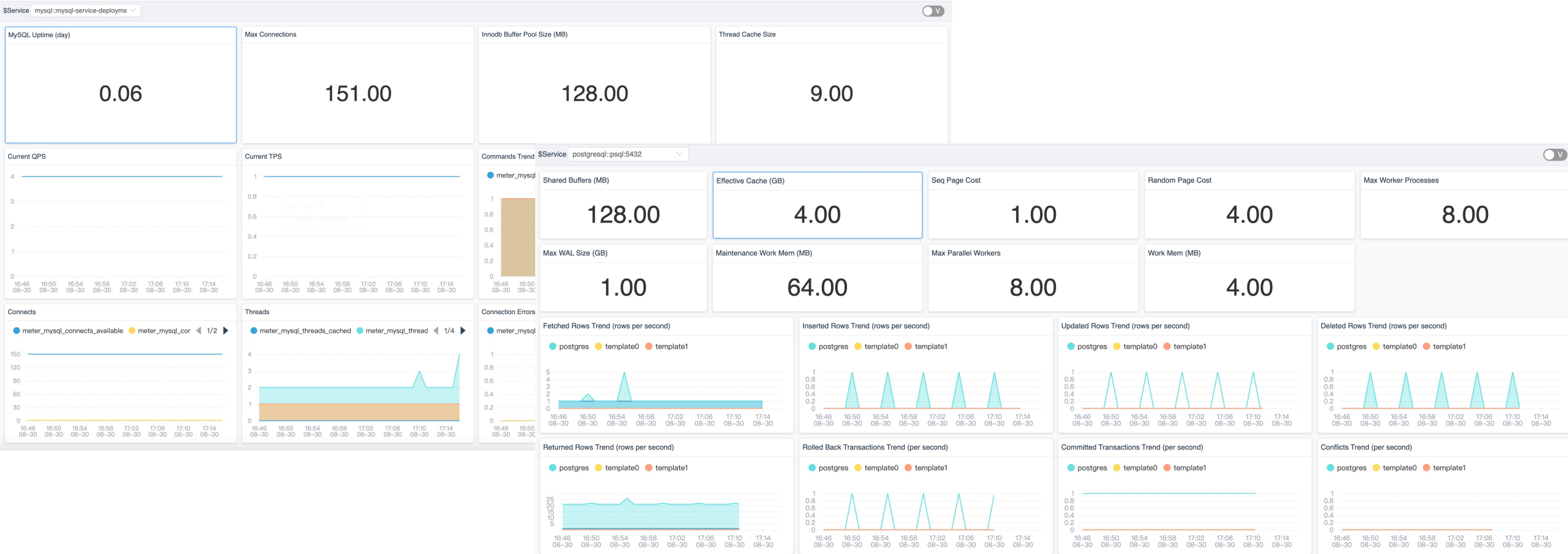
The screenshot displays the SkyWalking console interface for viewing pod logs. At the top, the service is identified as 'agentless::app' and the instance as 'app-deployment-76867d57d4-28s7x'. The 'Pod Log' tab is selected, showing a list of log entries for a container named 'app'. The logs include timestamps, container identifiers, and the content of the logs, which appear to be a series of messages and commands related to the installation and configuration of 'core-js'.

```
$Service agentless::app $ServiceInstance app-deployment-76867d57d4-28s7x
Overview Envoy Proxy Envoy Log Pod Log
Container: app Duration: From 30 minutes ago -- Now Refresh Interval: 5s
Keys Of Content: Please input a keyword of content Exclude Keys Of Content: Please input a keyword of ex

19 [app] [96mAlso, the author of core-js ( [94m https://github.com/zloirock [96m) is looki
20 [app]
21 [app]
22 [app] > core-js@3.19.1 postinstall /app/ui/node_modules/core-js
23 [app] > node -e "try{require('./postinstall')}catch(e){}"
24 [app]
25 [app] [96mThank you for using core-js ( [94m https://github.com/zloirock/core-js [96
26 [app]
27 [app] [96mThe project needs your help! Please consider supporting of core-js: [0m
28 [app] [96m> [94m https://opencollective.com/core-js [0m
29 [app] [96m> [94m https://patreon.com/zloirock [0m
30 [app] [96m> [94m https://paypal.me/zloirock [0m
31 [app] [96m> [94m bitcoin: bc1qlea7544qtsmj2rayg0lthvza9fau63ux0fstcz [0m
32 [app]
33 [app] [96mAlso, the author of core-js ( [94m https://github.com/zloirock [96r
34 [app]
35 [app]
36 [app] > core-js-pure@3.19.1 postinstall /app/ui/node_modules/core-js-pure
37 [app] > node -e "try{require('./postinstall')}catch(e){}"
38 [app]
39 [app] [96mThank you for using core-js ( [94m https://github.com/zlo
40 [app]
41 [app] [96mThe project needs your help! Please consider supportir
42 [app] [96m> [94m https://opencollective.com/core-js [0m
43 [app] [96m> [94m https://patreon.com/zloirock [0m
44 [app] [96m> [94m https://paypal.me/zloirock [0m
45 [app] [96m> [94m bitcoin: bc1qlea7544qtsmj2rayg0lthvza9
```

MySQL/PostgreSQL/Elasticsearch

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04

Better Observability Integration

Zipkin Alternative Server and Lens UI 2023 | APACHE • SkyWalking

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Mesh-Root

2023-03-09 11:28 ~ 2023-03-09 11:58 UTC+0:0



Zipkin

Find a trace

ENGLISH



Search by trace ID



RUN QUERY



10 Results

EXPAND ALL

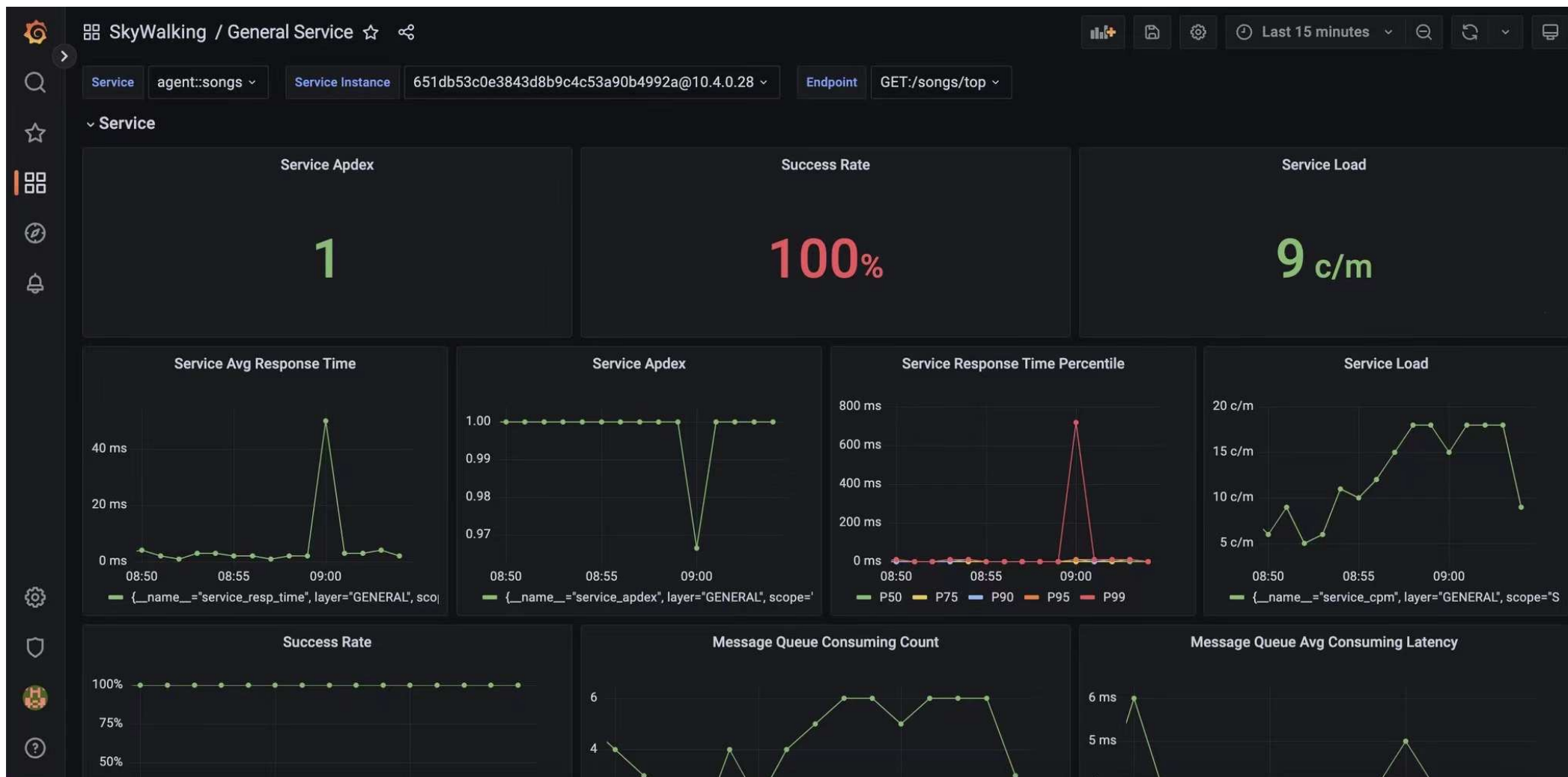
COLLAPSE ALL

Service filters

Root		Start Time	Spans	Duration	
▼	grafana.default: oap.default.svc.cluster.local:9090/*	a few seconds ago (03/09 11:58:21:014)	1	14.902ms	SHOW
▼	elasticsearch-es-master-nodes.default: elasticsearch-es-http.default.svc.cluster.local:9200/*	a few seconds ago (03/09 11:58:21:442)	1	13.235ms	SHOW
▼	elasticsearch-es-master-nodes.default: elasticsearch-es-http.default.svc.cluster.local:9200/*	a few seconds ago (03/09 11:58:19:841)	1	9.425ms	SHOW
▼	grafana.default: oap.default.svc.cluster.local:9090/*	a few seconds ago (03/09 11:58:21:003)	1	8.440ms	SHOW
▼	elasticsearch-es-master-nodes.default: elasticsearch-es-http.default.svc.cluster.local:9200/*	a few seconds ago (03/09 11:58:19:925)	1	8.086ms	SHOW

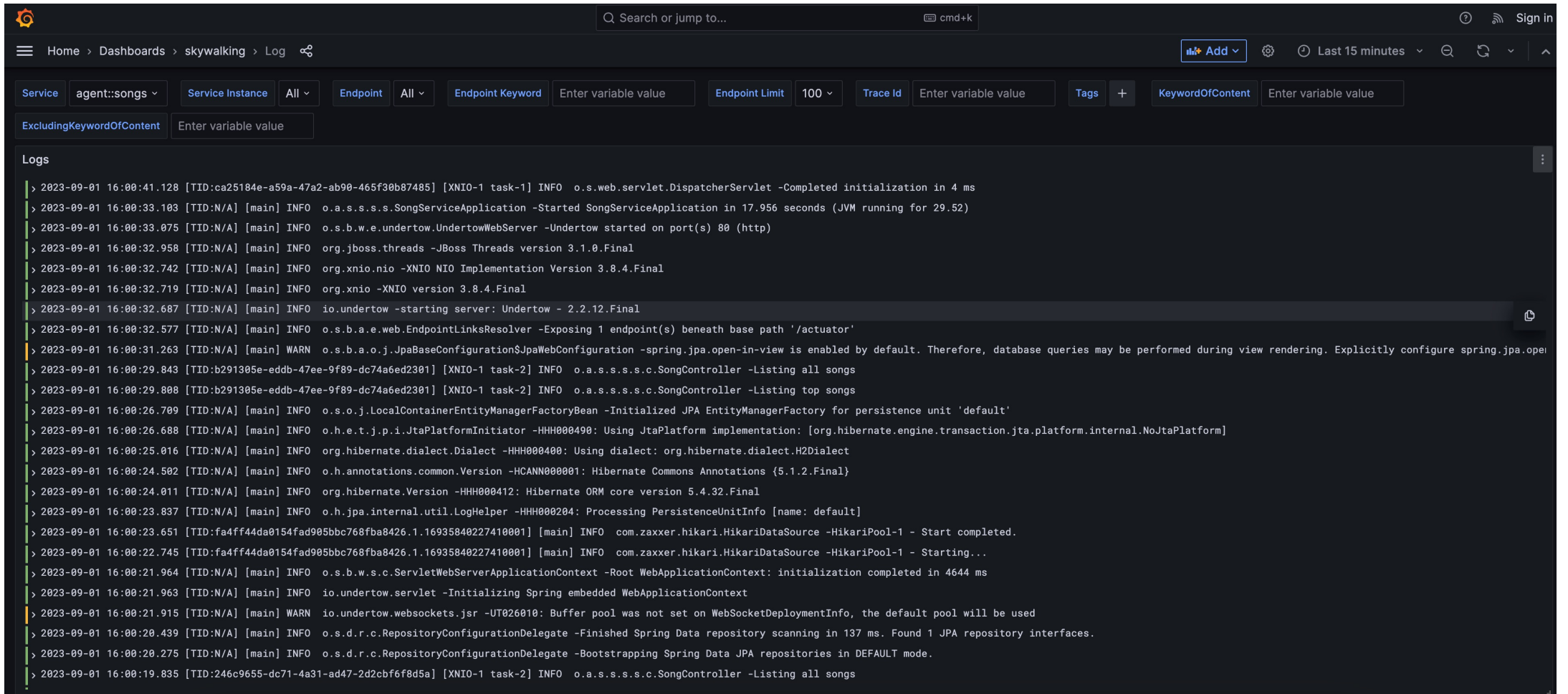
PromQL and Grafana Support

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Loki LogQL and Grafana Support

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The screenshot displays the Grafana Loki LogQL interface. At the top, there is a search bar with the text "Search or jump to..." and a "cmd+k" shortcut. Below the search bar, the breadcrumb navigation shows "Home > Dashboards > skywalking > Log". The interface includes several filter buttons: "Service" (set to "agent::songs"), "Service Instance" (set to "All"), "Endpoint" (set to "All"), "Endpoint Keyword" (with a text input "Enter variable value"), "Endpoint Limit" (set to "100"), "Trace Id" (with a text input "Enter variable value"), "Tags" (with a "+" button), "KeywordOfContent" (with a text input "Enter variable value"), and "ExcludingKeywordOfContent" (with a text input "Enter variable value").

The main area displays a list of log entries under the heading "Logs". Each entry is a log line with a timestamp, thread ID, thread name, log level, and message. The log entries are as follows:

```
> 2023-09-01 16:00:41.128 [TID:ca25184e-a59a-47a2-ab90-465f30b87485] [XNIO-1 task-1] INFO o.s.web.servlet.DispatcherServlet -Completed initialization in 4 ms
> 2023-09-01 16:00:33.103 [TID:N/A] [main] INFO o.a.s.s.s.s.SongServiceApplication -Started SongServiceApplication in 17.956 seconds (JVM running for 29.52)
> 2023-09-01 16:00:33.075 [TID:N/A] [main] INFO o.s.b.w.e.undertow.UndertowWebServer -Undertow started on port(s) 80 (http)
> 2023-09-01 16:00:32.958 [TID:N/A] [main] INFO org.jboss.threads -JBoss Threads version 3.1.0.Final
> 2023-09-01 16:00:32.742 [TID:N/A] [main] INFO org.xnio.nio -XNIO NIO Implementation Version 3.8.4.Final
> 2023-09-01 16:00:32.719 [TID:N/A] [main] INFO org.xnio -XNIO version 3.8.4.Final
> 2023-09-01 16:00:32.687 [TID:N/A] [main] INFO io.undertow -starting server: Undertow - 2.2.12.Final
> 2023-09-01 16:00:32.577 [TID:N/A] [main] INFO o.s.b.a.e.web.EndpointLinksResolver -Exposing 1 endpoint(s) beneath base path '/actuator'
> 2023-09-01 16:00:31.263 [TID:N/A] [main] WARN o.s.b.a.o.j.JpaBaseConfiguration$JpaWebConfiguration -spring.jpa.open-in-view is enabled by default. Therefore, database queries may be performed during view rendering. Explicitly configure spring.jpa.open
> 2023-09-01 16:00:29.843 [TID:b291305e-eddb-47ee-9f89-dc74a6ed2301] [XNIO-1 task-2] INFO o.a.s.s.s.s.c.SongController -Listing all songs
> 2023-09-01 16:00:29.808 [TID:b291305e-eddb-47ee-9f89-dc74a6ed2301] [XNIO-1 task-2] INFO o.a.s.s.s.s.c.SongController -Listing top songs
> 2023-09-01 16:00:26.709 [TID:N/A] [main] INFO o.s.o.j.LocalContainerEntityManagerFactoryBean -Initialized JPA EntityManagerFactory for persistence unit 'default'
> 2023-09-01 16:00:26.688 [TID:N/A] [main] INFO o.h.e.t.j.p.i.JtaPlatformInitiator -HHH000490: Using JtaPlatform implementation: [org.hibernate.engine.transaction.jta.platform.internal.NoJtaPlatform]
> 2023-09-01 16:00:25.016 [TID:N/A] [main] INFO org.hibernate.dialect.Dialect -HHH000400: Using dialect: org.hibernate.dialect.H2Dialect
> 2023-09-01 16:00:24.502 [TID:N/A] [main] INFO o.h.annotations.common.Version -HCANN000001: Hibernate Commons Annotations {5.1.2.Final}
> 2023-09-01 16:00:24.011 [TID:N/A] [main] INFO org.hibernate.Version -HHH000412: Hibernate ORM core version 5.4.32.Final
> 2023-09-01 16:00:23.837 [TID:N/A] [main] INFO o.h.jpa.internal.util.LogHelper -HHH000204: Processing PersistenceUnitInfo [name: default]
> 2023-09-01 16:00:23.651 [TID:fa4ff44da0154fad905bbc768fba8426.1.16935840227410001] [main] INFO com.zaxxer.hikari.HikariDataSource -HikariPool-1 - Start completed.
> 2023-09-01 16:00:22.745 [TID:fa4ff44da0154fad905bbc768fba8426.1.16935840227410001] [main] INFO com.zaxxer.hikari.HikariDataSource -HikariPool-1 - Starting...
> 2023-09-01 16:00:21.964 [TID:N/A] [main] INFO o.s.b.w.s.c.ServletWebServerApplicationContext -Root WebApplicationContext: initialization completed in 4644 ms
> 2023-09-01 16:00:21.963 [TID:N/A] [main] INFO io.undertow.servlet -Initializing Spring embedded WebApplicationContext
> 2023-09-01 16:00:21.915 [TID:N/A] [main] WARN io.undertow.websockets.jsr -UT026010: Buffer pool was not set on WebSocketDeploymentInfo, the default pool will be used
> 2023-09-01 16:00:20.439 [TID:N/A] [main] INFO o.s.d.r.c.RepositoryConfigurationDelegate -Finished Spring Data repository scanning in 137 ms. Found 1 JPA repository interfaces.
> 2023-09-01 16:00:20.275 [TID:N/A] [main] INFO o.s.d.r.c.RepositoryConfigurationDelegate -Bootstrapping Spring Data JPA repositories in DEFAULT mode.
> 2023-09-01 16:00:19.835 [TID:246c9655-dc71-4a31-ad47-2d2cbf6f8d5a] [XNIO-1 task-2] INFO o.a.s.s.s.s.c.SongController -Listing all songs
```


05

What Should We Expect in 2024?

BanyanDB Available For Scale Testing 2023

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BanyanDB

- Releases
 - 0.4 Standalone Mode First Time Available
 - 0.5 Cluster Mode First Time Available
- Plans
 - 0.6 First Completed Feature Version
 - 0.7 – 0.9 Bug Fix, Stability and Performance

Q&A

欢迎提问交流
(仅限2位提问)



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感谢您的观看

