All About SigNoz

SigNoz:
- It is an open-source observability tool powered by OpenTelemetry. [1]
- It can be used to monitor applications and infrastructure. [1]
- It supports a wide range of telemetry signals such as logs, metrics, traces, exceptions, etc. [1]
- Alerts can be set up to monitor any issue / a critical metric crossing a threshold. [1]
- Since Signoz is built on top of OpenTelemetry, vendor lock-in is completely avoided. [1]
- The logs sent to SigNoz are stored in the **ClickHouse** datastore. [4]

Next, we will look at how logs are collected from SigNoz. There are many ways to send logs to SigNoz, but we will focus on 2 ways of doing so:
- Sending the log entries from the log file using OpenTelemetry Collector. [2]
- Sending logs generated using Winston NodeJS logger to SigNoz without any collectors. [3]

Here is how we collect log entries using OpenTelemetry Collector:
- We need to install the OpenTelemetry Collector (OTel Collector). [2]
- Configure the **config.yaml** file of the OTel Collector. [2]
- We need to update the pipeline configuration. [2]
- After that, we need to restart the OTL Collector for the changes to take place. [2]
- When the logs arrive, they will then be visible on the **Logs** tab of SigNoz. [2]

Now, we will look at how to send logs to SigNoz directly by using Winston and NodeJS:
- We need to install the the following dependencies using npm: **@opentelemetry/api-logs,@opentelemetry/sdk-logs,@opentelemetry/exporter-logs-otlp-http,@opentelemetry/winston-transport,@opentelemetry/resources, winston, dotenv**. [3]
- We need to create a file called **logger.js**. It will provide the initial configuration for our application. It creates a logger using **winston** and configures it to send logs to SigNoz. [3]
- The **LoggerProvider** manages logs for our application. The **Resource** property adds metadata about our application. [3]
- The **OTLPLogExporter** defines the endpoint where logs are exported. It uses the environment variables **OTEL_EXPORTER_OTLP_ENDPOINT** and **SIGNOZ_INGESTION_KEY**. [3]
- A new **.env** file is created with the above variables. [3]
- Many different types of log entries can be sent to SigNoz. [3]

We will now discuss some of the features of SigNoz in detail.

Log Management:
- A query builder that allows us to perform various queries such as **count**, **sum**, **average**, etc. It also allows us to group our queries by different attributes and also to filter data using logical operators. [5]
- Pre-processing of logs through log pipelines. [5]
- Search and filter logs quickly through operators like **contains, in, not_in, like, not_like,** etc. [5]
- Save the results of complex queries as **views**. [5]
- View Logs in real time through **Live Logs**. [5]

Distributed Tracing:
- Quick filters allow us to see spans of specific status codes, service names, operations, etc. [6]
- We can group our trace data based on select attributes. We can also apply several aggregations such as **count**, **sum**, **average**, etc. [6]
- Saved views allow us to get our queries quickly. [6]
- Correlation of traces with logs. [6]
- Flame graphs and Gantt Chart views of traces. [6]

Alerts:
- Anomaly based alerts allow us to define alerts on the basis of metric data and trigger them in case of any deviation in the metrics. [7]
- Metrics based alerts allow us to define alerts based on conditions in the metrics and trigger the alert when the condition is met. [7]
- Log based alerts are triggered based on certain conditions in logs. [7]
- Alerts based on exception data and trace data triggering when certain conditions in these data are met. [7]
- Get alerts / notifications on Slack, MS Teams, etc. [7]

Application Performance Monitoring (APM):
- Support for all popular languages. [8]
- OOB charts for latency, error-rate, ops. Per second, etc. [8]
- User level satisfaction score (Apdex). [8]
- Database call metrics. [8]
- Metrics about key endpoints. [8]
- Metrics on calls of external applications. [8]

Dashboards & Metrics:
- Versatile query builder. [9]
- Support for mathematical functions. [9]
- Rich visualisations. [9]
- Write ClickHouse queries directly onto the data. [9]
- PromQL support. [9]

Pricing:
- Starts at $199/month (Teams)
- Starts $4000 / month (Enterprise)

REFERENCES

[1] https://signoz.io/docs/introduction/#features-of-signoz

[2] https://signoz.io/docs/userguide/collect_logs_from_file/

[3] https://signoz.io/docs/logs-management/send-logs/nodejs-winston-logs/

[4] https://signoz.io/

[5] https://signoz.io/log-management/

[6] https://signoz.io/distributed-tracing/

[7] https://signoz.io/alerts-management/

[8] https://signoz.io/application-performance-monitoring/

[9] https://signoz.io/metrics-and-dashboards/

[10] https://signoz.io/pricing/