# mainstorconcept

# Z/IRIS® ENABLING MAINFRAME-INCLUSIVE APM

### **KEY FEATURES**

#### ZIIP ELIGIBLE

z/IRIS z/OS clients can run on zIIP processors. This minimizes the running costs for our mainframe customers and ensures general purpose processors are available for business application workloads.

#### **OPENTELEMETRY SUPPORT**

This CNCF project is an observability framework that defines an open standard for telemetry data, including traces and metrics. mainstorconcept acknowledges the importance of such an open standard, as its capabilities will ensure sustainable, vendor-neutral APM support for z/IRIS customers.

#### INTEGRABLE

The z/IRIS plug-in architecture provides seamless integration into partner ISV APM products, open-source enterprise APM software and distributed metric data stores. Custom integration solutions can be contracted through our professional services.

#### APACHE KAFKA INTEGRATION

z/IRIS integrates with an in-house Apache Kafka cluster to stream and store SMF data, while leveraging Kafka's distributed, highly scalable, elastic, fault-tolerant, and secure event streaming technology. There is a short supply of APM vendors who can support mainframe technology. This is despite the fact that around 70% of Fortune 500 companies use mainframe technologies and every second, 1.1 million high-volume customer transactions occur on mainframe, compared to just 60,000 Google searches a second.

As a consequence, mainframe-backed organizations lack visibility into core business services that have impact on end user experience, reliability and availability.

z/IRIS enables mainframe observability support in application performance monitoring (APM) tools so that organizations can monitor, analyse and alert on mainframe services using industry leading APM software.

z/IRIS produces mainframe traces and metrics that are integrated directly into APM servers, where they are processed and correlated to the distributed application calls that generated the workload.

Traces provide latency and error information for applications calls. Additionally, trace tags contain mainframe system, request and user information that be examined using the analysis capabilities provided by APM software and AIOps engines.

Metrics can be used to create dashboards, to monitor mainframe calls and system performance, as well as alert on anomalies and configurable thresholds that are critical to meeting reliability targets.

Gartner's 2021 Magic Quadrant for APM predicts that by 2025, 70% of new cloud-native applications monitoring will use open-source instrumentation, like OpenTelemetry, rather than vendor-specific agents for improved interoperability.

## **ARCHITECTURE OVERVIEW**



FIGURE 1: Z/IRIS HIGH-LEVEL DESIGN

z/IRIS is composed of one or more z/OS clients that run on mainframe LPARs and distributed servers that run on Linux.

A z/IRIS z/OS client is a sleek IBM JZOS-based application that can run on zIIP processors to reduce the running mainframe costs. The clients read SMF data from predefined and customizable SMF inmemory resources. The SMF records are streamed, in real-time, to an existing, network accessible Apache Kafka cluster.

Using an in-house Apache Kafka cluster to store and stream SMF records, provides users with the following capabilities:

- Leverage Kafka's highly scalable, fault-tolerant and secure event streaming platform.
- Store raw SMF data streamed from the z/OS clients, using customized retention configurations that meet business requirements.
- Compatible 3rd party tools can access the raw SMF data in the Kafka cluster, in real-time. This increases the business value of SMF data and helps convert post-processing activities into real-time events.

The z/IRIS server reads SMF data from the Kafka cluster in near real-time and creates mainframe traces from SMF data by transforming, formatting and normalizing the data according to OpenTelemetry's OTLP format. This ensures compatibility with any APM solutions that natively support OpenTelemetry. The mainframe traces are posted to a pre-configured APM system for processing using generally available APIs provided by the APM vendor.

With z/IRIS, DevOps teams can:

- view mainframe traces and performance data in familiar APM user interfaces.
- search and filter mainframe traces within the context of their business applications.
- configure alerts based on data provided by z/IRIS mainframe traces
- stream mainframe metrics to in-house data sinks for analysis
- use z/IRIS importable and customizable Grafana dashboards to visualize z/IRIS metrics in Grafana

# z/IRIS<sup>®</sup>

### **OBSERVABILITY USE CASES**

#### DISTRIBUTED DB2 Z/OS (SMF TYPE 101-102)

Monitor the performance of JDBC requests processed on IBM® Db2 for z/OS® systems. Users can identify latencies and errors that impact business services, as well as monitor and analyze resource consumption. Events can be used to create automatic alerts or trigger incident management workflow.

# MAINFRAME RESOURCE MONITORING (SMF TYPE 70)

Metrics for CPU usage are created from SMF type 70 records to provide measurements for CPU load, contention and in-ready work queue distribution.

Additional metrics from other SMF records will be added overtime.

#### Z/OS CONNECT SERVERS (SMF TYPE 123)

The performance of REST API calls processed by IBM® z/OS Connect® servers can be monitored to identify mainframe related latencies and errors. Users can analyze the behavior of requests flow to servers and System-Of-Records (i.e. service providers) and distinguish network latencies from processing time.

#### Z/OS WORK (SMF TYPE 30)

Monitor z/OS batch jobs, address spaces and TSO user activity. Users can identify longrunning tasks, CPU-intensive batch jobs and processes and have direct access to errors and error messages directly in the organization's strategic APM tools.

## **CONTACT US**

#### BECOME A Z/IRIS CUSTOMER

Contact us to arrange a no-obligation demontration of z/IRIS and discuss how we can resolve your mainframe-backed DevOps needs. We will gladly assess any APM products to determine the quality of service we can provide. We also offer contracted professional services to develop custom integration with z/IRIS to meet your unique business requirements.

#### MORE INFORMATION

Comprehensive documentation including minimum requirements, installation and user guides, how-to's and more can be found on our public knowledge base website: public.mainstorconcept.com.

#### BECOME A Z/IRIS TECHNOLOGY PARTNER

Organizations that invest in mainframe technology, require mainframe support that help them. Our z/IRIS solution will enable mainframe-inclusive observability using your integration features and functionality. We also provide professional services and support to your customers to ensure a fast start-up and quick ROI.

#### OUR TECHNOLOGY PARTNERS

