

# Distributed Tracing for New-Age Troubleshooting

## Quick Summary

**Apica Distributed Tracing empowers organizations to efficiently profile and debug complex distributed systems. With seamless integration of OpenTelemetry and Jaeger, Apica Ascent provides a scalable solution for ingesting, storing, and analyzing trace data across large, distributed environments.**

## The Challenge

### Major Challenges

- **Data Analysis:** Analyzing vast amounts of trace data requires specialized tools and expertise.
- **Data Correlation:** Correlating trace data across services with different formats and structures is difficult.
- **Scalability** The massive volume of trace data generated by large systems can be overwhelming and challenging to scale.
- **Data Privacy:** Handling trace data raises concerns about data privacy and security.

## Key Benefits

- **Comprehensive Data Correlation:** Easily correlate and analyze trace data from different parts of your system for a holistic view.
- **User-Friendly Interface:** Simplify the adoption process with a user-friendly interface that brings all relevant data together.
- **Efficient Troubleshooting:** Quickly trace the flow of requests to identify root causes and troubleshoot distributed applications.
- **Time-Saving:** Save time by accessing all necessary data in one centralized location, streamlining the debugging process.
- **Complexity:** Setting up and maintaining distributed tracing across large systems can be intricate and time-consuming.
- **Overhead:** Collecting and transmitting trace data can impact application performance due to added overhead.

## Key Features

### OpenTelemetry and Jaeger Compatibility

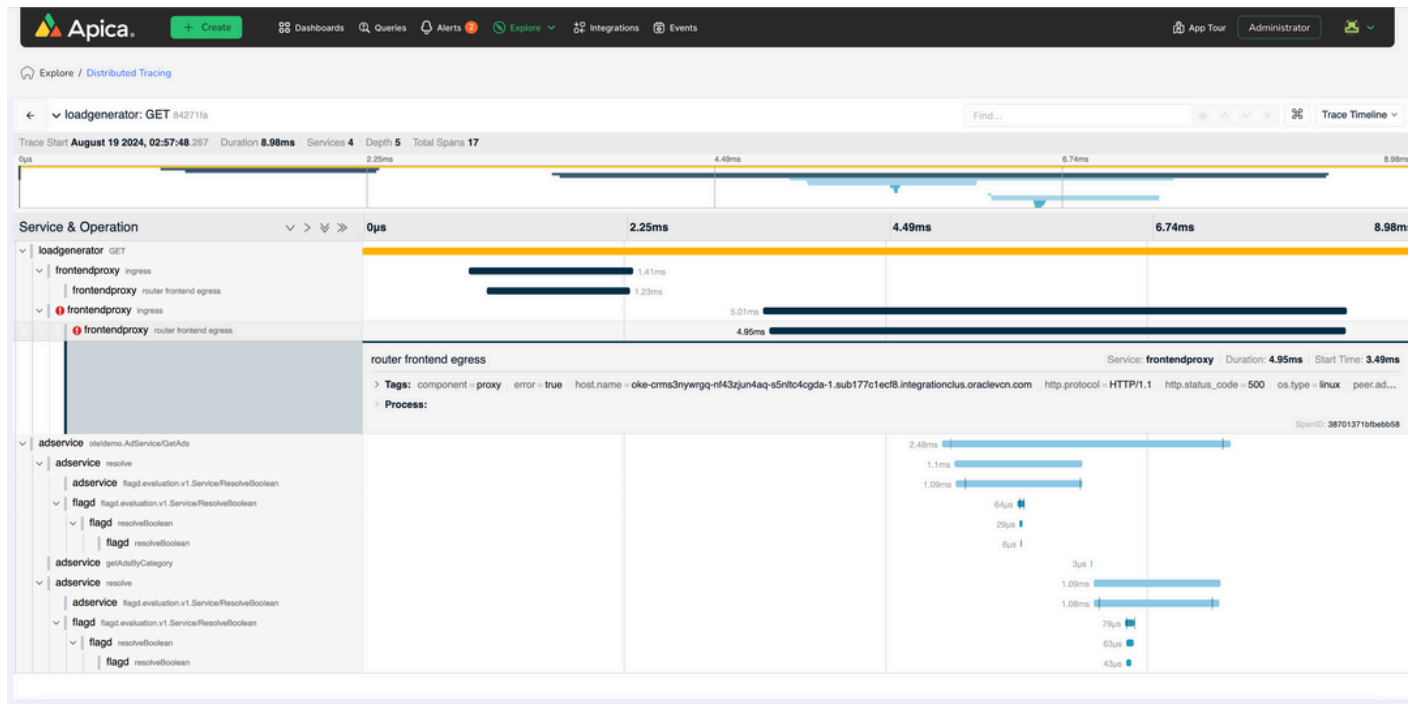
Apica’s distributed tracing solution natively supports OpenTelemetry and Jaeger protocols, allowing seamless integration with existing tools.

### Scalable Trace Ingestion

Utilize Jaeger agents or OpenTelemetry collectors to ingest logs, metrics, and traces at scale, ensuring your system can handle large volumes of data.

### SpanStore Built on InstaStore

Apica’s SpanStore leverages InstaStore, an indexed object storage solution optimized for observability, to store and manage trace data efficiently.



## Architecture

- Run on any Kubernetes environment, on-premise, or on the public cloud.
- Built with a microservices architecture, and cloud-native principles.
- Scales from a single laptop to hundreds of nodes.
- 200+ data integrations via standardized protocols, push agents, pull integrations, and custom data collectors.
- Deployment options:
  - Available as a SaaS or self-hosted option.
  - OVA is available for virtualized infrastructure for small-scale deployments.
- Patented InstaStore technology for streaming data into any object storage for long-term retention and reverse ETL.
- Support for push data:
  - Open source agents such as OpenTelemetry, Fluentbit, Fluentd, Logstash, Filebeats, Vector
  - Syslog compatible push clients, Syslog-ng, and Rsyslog
  - Syslog RFC support for RFC3164, RFC5424, RFC5425, RFC 6587.
- Support for pulling data via built-in plugins such as Oracle Integration Pub/Sub, Kafka, and S3 compatible storage, among others.
- Ability to launch custom push/pull data integrations by launching user-created docker microservices in the telemetry pipeline.
- Live tailing of data for telemetry streams.
- Powerful rule engine for building the precise pipeline that meets your data needs.

## Product Features

- Jaeger UI Integration:
  - Intuitive interface for visualizing traces.
  - Comprehensive search capabilities based on service, operation, and tags.
  - Full span and log analysis with easy download options.
- Advanced Trace Collection:
  - Ingests traces directly from Jaeger agents and OpenTelemetry collectors.
  - Scalable streaming and indexing to object storage.
  - Real-time trace collection for immediate analysis.
- Trace Visualization and Analysis:
  - Detailed visual representation of trace spans.
  - Interactive timeline view for trace and span analysis.
  - Integration with logs for comprehensive debugging.
- AI/ML based Anomaly Detection:
  - Automatic detection of performance bottlenecks and anomalies in traces.
  - Machine learning algorithms to identify unusual patterns.
- Alerting and Notification:
  - Set up alerts based on trace metrics and anomalies.
  - Multi-channel notifications (email, Slack, PagerDuty, webhooks, etc.).
- Scalable and Flexible Storage:
  - Infinite scalability with object storage backend.
  - Long-term storage of traces and logs.

## Working with Data

- Data Collection
  - Ingests data from Jaeger agents and OpenTelemetry collectors.
  - Supports multiple data formats including OpenTelemetry, and Jaeger formats.
- Data Processing
  - Real-time processing and indexing of trace data.
  - Enrichment and transformation of trace data for enhanced analysis.
  - Automatic correlation of traces with logs.
- Data Exploration
  - Advanced search capabilities for traces and spans.
  - Query builder with autocomplete for efficient data exploration.
  - Metadata and label browsing for detailed trace analysis.
- Data Visualization
  - Interactive Jaeger UI for trace visualization.
  - Customizable views for different trace metrics.
  - Integration with dashboards for a unified observability experience.
- Data Analysis
  - Built-in analytics functions for trace data (e.g., duration analysis, error rate).
  - Correlation of trace data with logs for root cause analysis.

## Open-Source Support

- Built-in support for OpenTelemetry collector, Fluent-bit, Telegraf, and other open-source agents.
- Extensible and compatible with a wide range of observability platforms, due to support for open-source protocols and technologies.

## OpenTelemetry Support

- Ingest data from OpenTelemetry collector, compatible with OpenTracing for legacy compatibility.
- Both core and contrib OpenTelemetry collector distributions are supported.
- Support for custom collector builds.
- Open Agent Management Protocol (OpAMP) is a core technology for fleet management capabilities.

## Data Types

- Traces
  - Distributed tracing data compatible with Jaeger and OpenTelemetry.
  - Detailed trace spans including start and end times, duration, and metadata.
  - Support for trace sampling and aggregation.
- Logs
  - Indexed log data associated with trace spans.
  - Structured and unstructured logs.
  - Log parsing and metric extraction from logs.
- Synthetic Monitoring Data
  - Support for more than 35 check types: Browser Checks, URL Checks, PING/PORT Checks, Mobile Checks, Desktop Checks, ZebraTester, and many more specialized options integrated with trace data.

## Security and Compliance

- SSO via SAML and LDAP.
- Support for HTTPS and TLS connections.
- Zero-Trust Architecture for Agent Management means no host passwords are needed.
- Role-based access control for telemetry data access and management.
- SOC2 Type2 and ISO27001 compliant.



**CLOUD NATIVE**  
COMPUTING FOUNDATION



**Contact us** today to schedule a demo. Or reach out to [sales@apica.io](mailto:sales@apica.io)