Innovation Insight: Telemetry Pipelines Elevate the Handling of Operational Data

Published 20 July 2023 - ID G00768888 - 9 min read

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Initiatives: I&O Operations Management

> Telemetry pipelines support collection, enrichment, transformation and routing of operational data from sources to destinations. Commercial products have emerged that make implementations simpler and easier, and I&O leaders struggling to manage logs, metrics or trace data should adopt this approach.

Overview

Key Findings

- Modern workloads generate increasing volumes — hundreds of terabytes and even petabytes — of telemetry originating from a variety of sources. This threatens to overwhelm the operators responsible for availability, performance and security. The cost and complexity associated with managing this data can be more than $10 million/year in large enterprises.

- Many organizations have multiple telemetry repositories and struggle with the redundant data transport and processing overload required for preprocessing data across all sources.

- Telemetry represents a rich and largely untapped source of business insight beyond event and incident response.

- Telemetry pipeline solutions offer a focal point and a mechanism for the holistic and collaborative management of telemetry and its distribution; this addresses many of its challenges.

Recommendations

To more effectively manage telemetry, infrastructure and operations leaders should:

- Improve collaboration among operations teams by reducing the number of discrete telemetry repositories. Unifying telemetry management will improve incident response and resolution.

- Simplify analysis and event generation by maintaining consistent naming and taxonomy in telemetry, regardless of the source. This can be implemented using the transformation capabilities of telemetry pipeline solutions.

- Reduce costs by filtering unnecessary telemetry and routing noncritical telemetry to low-cost, bulk storage, rather than unnecessarily ingesting it into analysis systems. The routing feature of telemetry pipeline solutions, in conjunction with distributed search, can leave it unindexed, but still available if necessary.

Strategic Planning Assumption

By 2026, 40% of log telemetry will be processed through a telemetry pipeline product, an increase from less than 10% in 2022.

Introduction

> **On this golden day, work's been sent our way, that could last a lifetime, working on the pipeline**
>
> — *Martin Gore*

As digital estates have increased in size and complexity, so has the task of monitoring them, or, more purposefully, understanding their behavior and ensuring that they meet performance, health and security objectives. Data transport and storage is often metered, and many monitoring solutions are as well, which makes the ingestion of unnecessary telemetry costly.

The challenge many organizations face is that it is difficult to know whether the telemetry needs to be retained until it has been ingested into the appropriate analysis platform, and, by then, much of the cost has already been incurred. Cost control is only one of the benefits of centrally managing the way telemetry moves within your enterprise, but is an important one. Figure 1 illustrates an example of telemetry pipeline implementation.

Figure 1: Telemetry Pipeline Overview

Telemetry Pipeline Overview
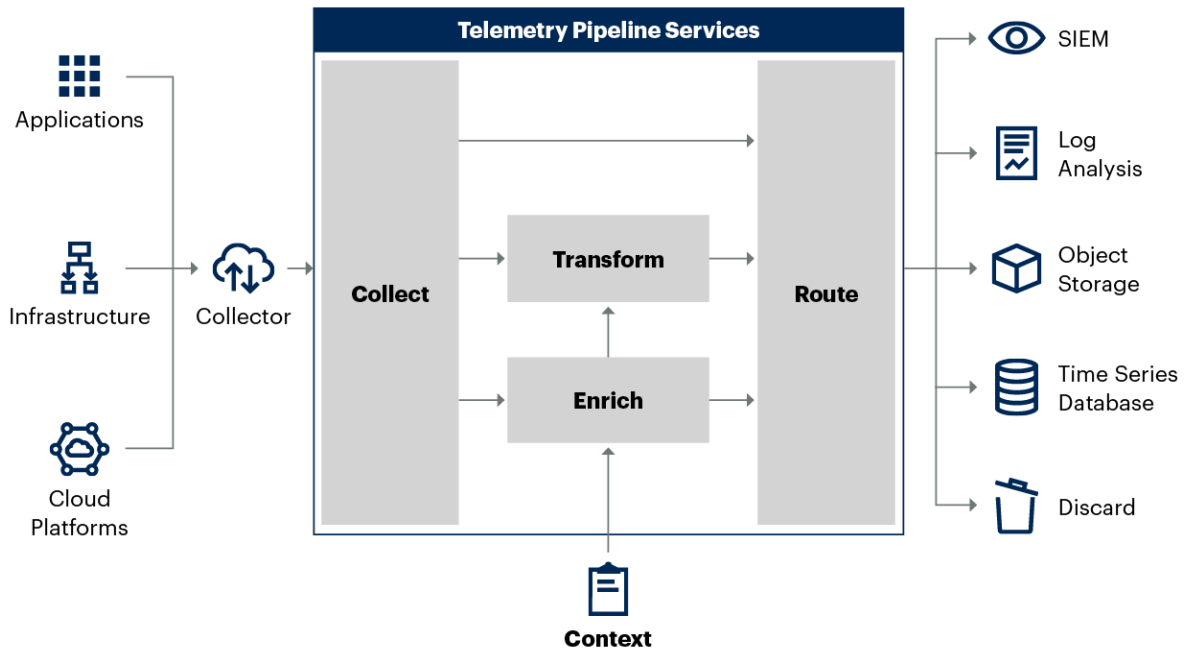
Source: Gartner
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Description

> **Definition**
>
> Telemetry pipelines — sometimes called observability pipelines — provide a uniform and holistic mechanism to manage the collection, ingestion, enrichment, transformation and routing of machine data from source to destination. These solutions can be consumed on a self-managed, software as a service (SaaS)-managed or hybrid basis. Telemetry pipelines may be stand-alone products, or part of a vendor's broader portfolio of monitoring solutions.

Operational data (commonly known as telemetry) generally takes one of these forms; however, it is not limited to these:

■   **Metrics/time series —** Measurements that include a numeric quantity, a time stamp along with additional context