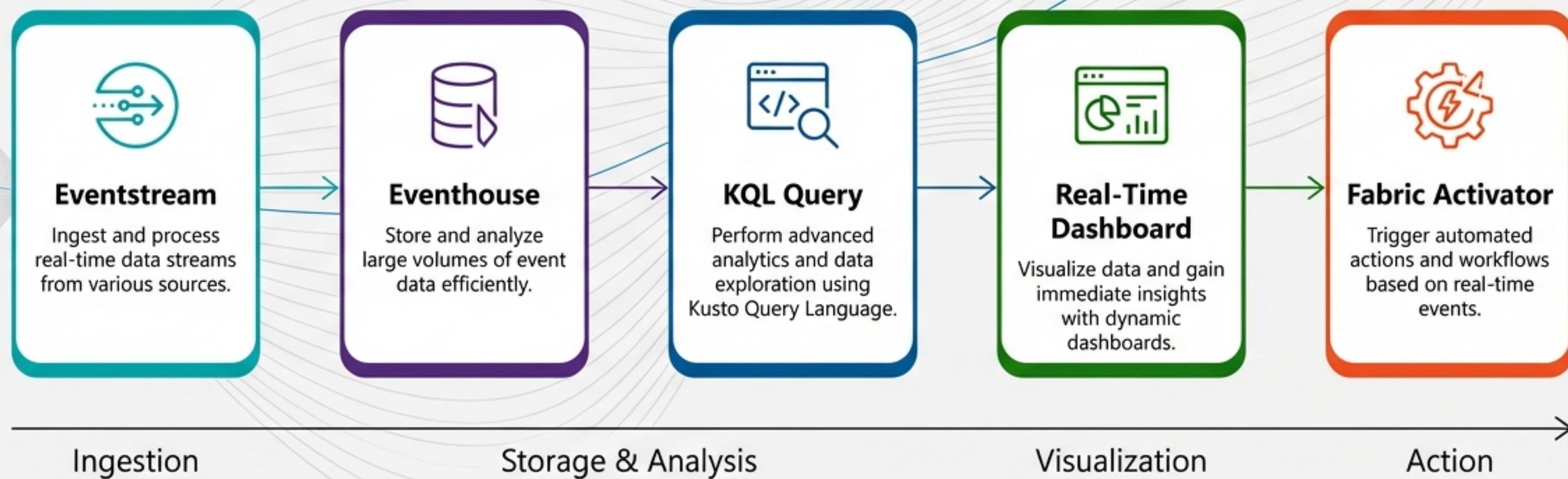


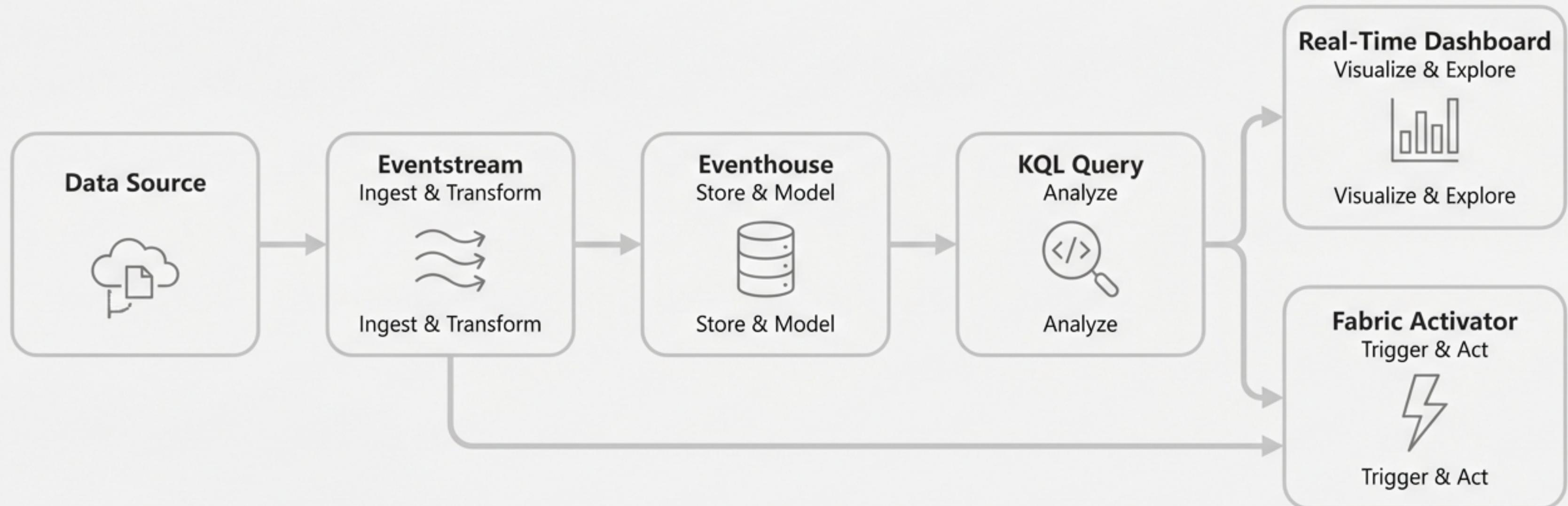
From Event to Action

The Journey of Data in Microsoft Fabric
Real-Time Intelligence



The Real-Time Intelligence Pipeline

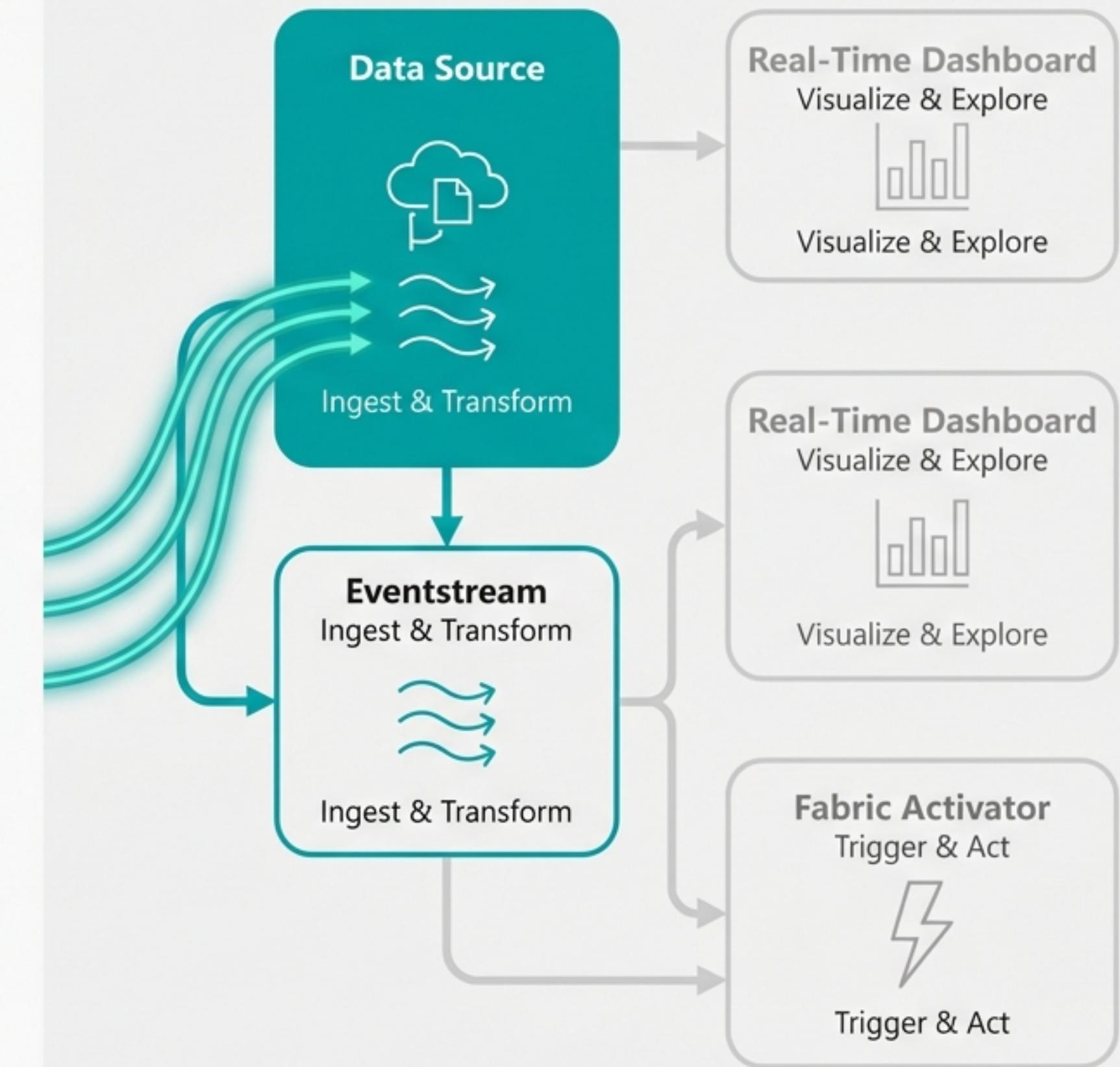
Microsoft Fabric provides an integrated, end-to-end platform for transforming raw data streams into immediate insights and automated responses. This journey follows data from its initial ingestion to its final destination.



The Journey Begins: Ingesting Data with Eventstream

Ingestion Hub: Eventstream is the central component for ingesting real-time data from various sources into the Microsoft Fabric environment.

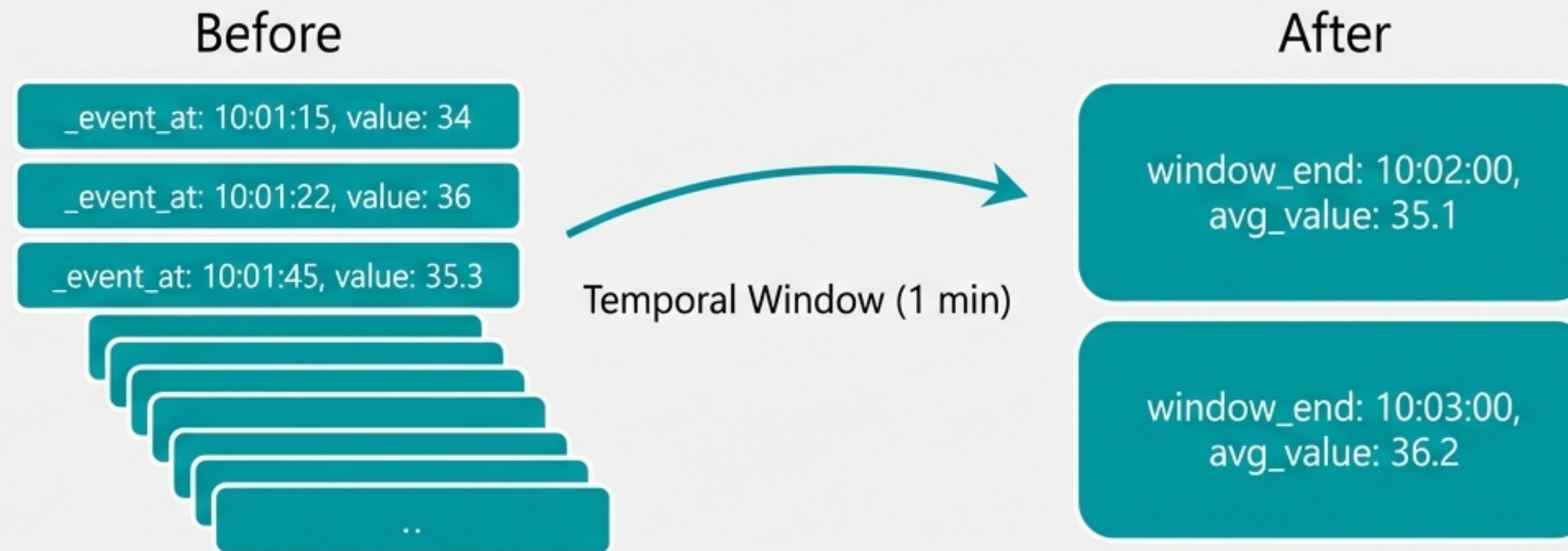
Real-Time Processing: It is designed not just to receive data, but also to perform transformations on the data as it flows through the system.



Shaping the Flow with Temporal Window Transformations

Beyond simple ingestion, Eventstream can reshape data in motion. Temporal window transformations are a key feature for summarizing high-volume event data.

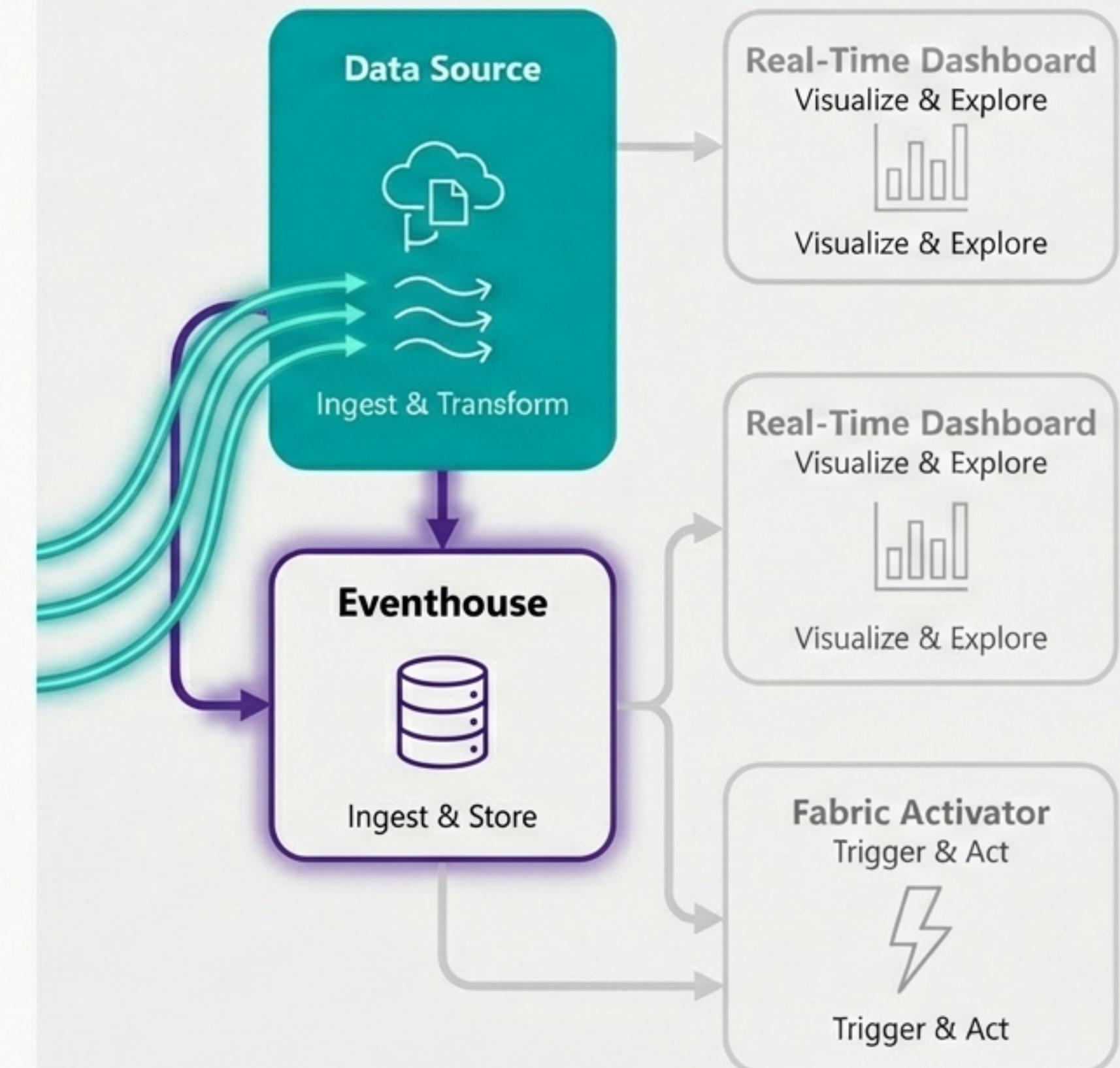
Aggregate by Time: This function enables you to aggregate event data in a stream based on specific time periods (e.g., calculating the average sensor reading per minute).



A Home for Real-Time Data: The Eventhouse

An **Eventhouse** is a specialized data store within Microsoft Fabric, specifically designed to handle real-time data for high-performance querying and analysis.

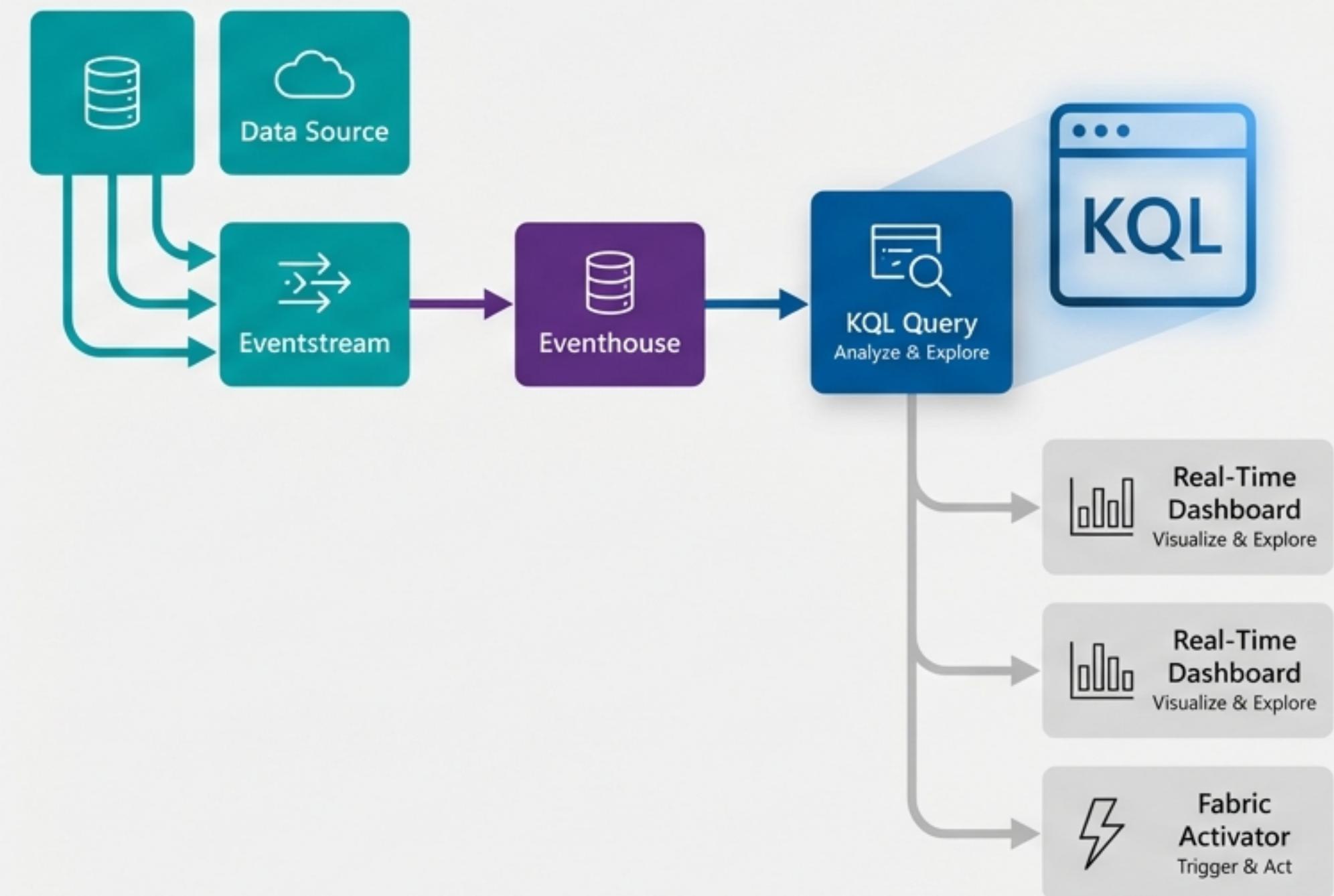
It serves as the primary storage destination for data processed by an Eventstream and is the foundation for a KQL database.



The Language of Real-Time: Querying with KQL

To unlock insights from the data stored in an Eventhouse, Microsoft Fabric uses **KQL** (Kusto Query Language).

Optimized for Real-Time: KQL is a powerful, intuitive language specifically optimized for querying vast amounts of structured and semi-structured real-time data with extremely low latency.



Precision Querying: Selecting Columns with the `project` Operator

KQL provides a rich set of operators to manipulate data. The `project` operator is essential for shaping the output of your queries.

Specify Your Output: Use `project` to explicitly define which columns from a table to include in your query results, optimizing performance and clarity.

```
SensorReadings  
where DeviceId == "TEMP-042"  
project Timestamp, DeviceId, Temperature
```



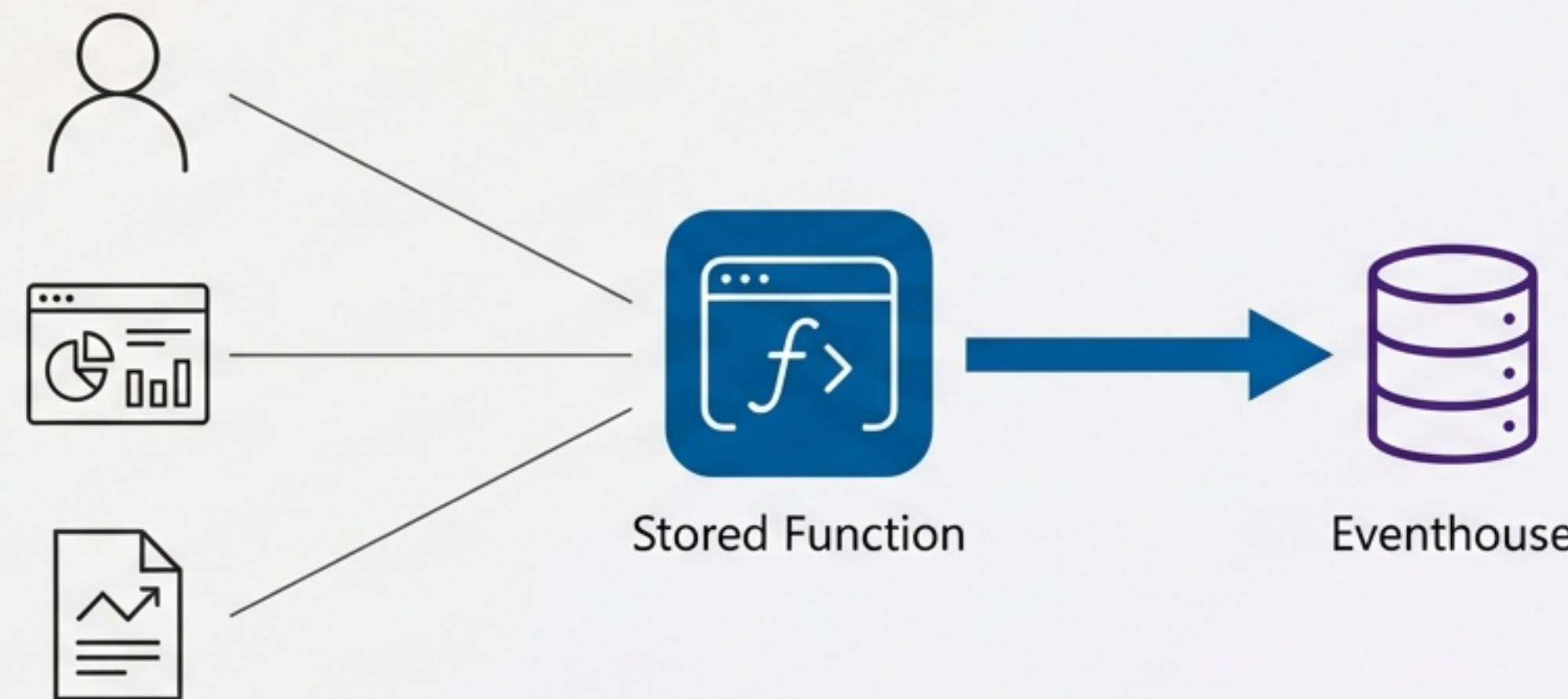
Timestamp	DeviceId	Temperature
2024-05-15 10:30:00	TEMP-042	22.5
2024-05-15 10:31:00	TEMP-042	22.7
2024-05-15 10:32:00	TEMP-042	22.6

Building Reusable Logic with Stored Functions

For complex or frequently used queries, KQL allows you to encapsulate logic into reusable components.

Create a Stored Function

A stored function is a reusable, parameterized query saved within a KQL database. It allows you to call complex logic with simple inputs, ensuring consistency and saving time.



The Twin Destinies: From Data to Insight and Action

Once data is processed and queried, it can serve two critical business purposes. It can be visualized for human analysis and decision-making, or it can be used to trigger automated processes.



Analyzed Data



Human Insight

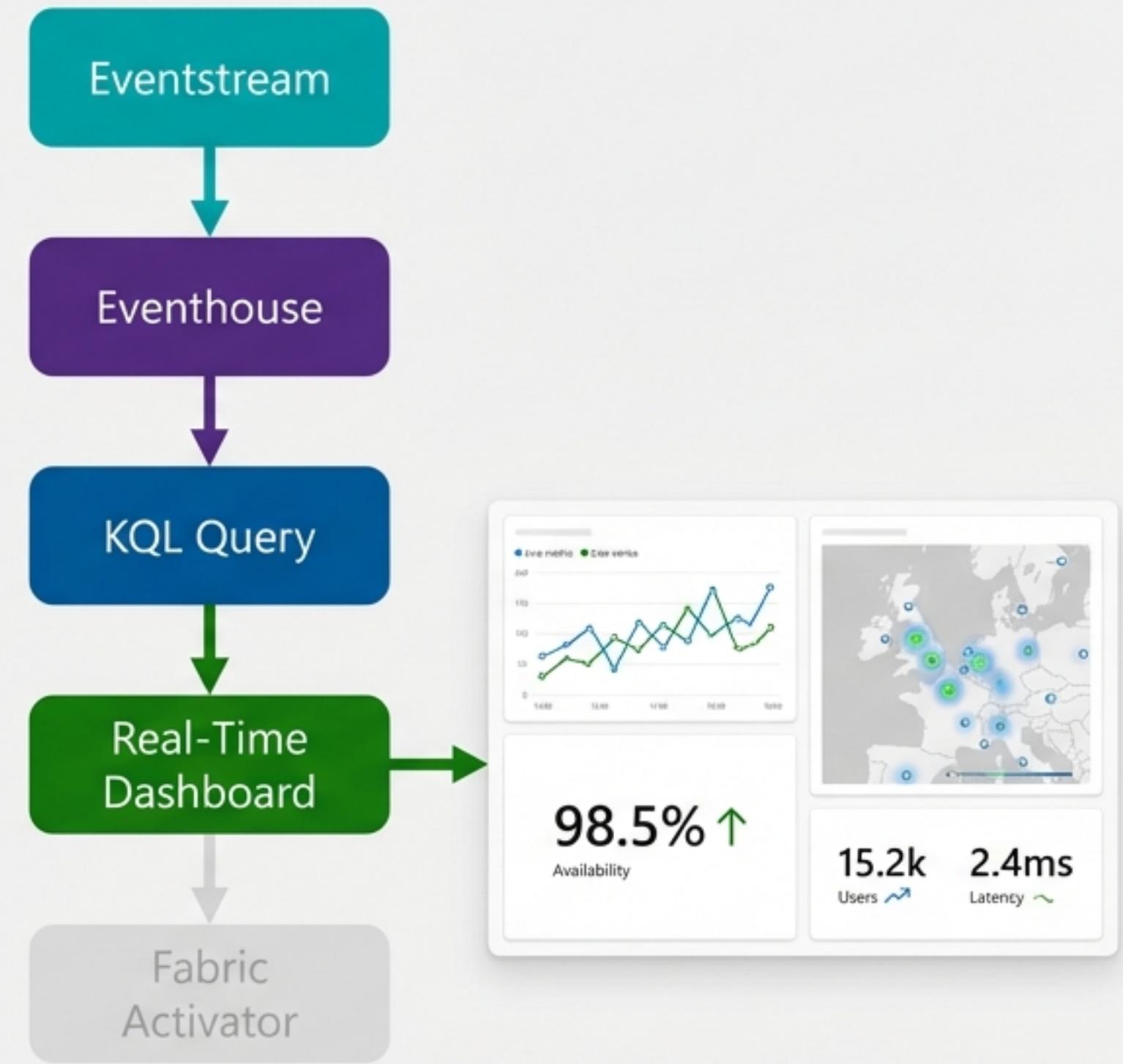


Automated Action

The Path to Insight: Real-Time Dashboards

A Real-Time Dashboard is a native Microsoft Fabric item designed to display and explore data from a real-time streaming source, such as an Eventhouse.

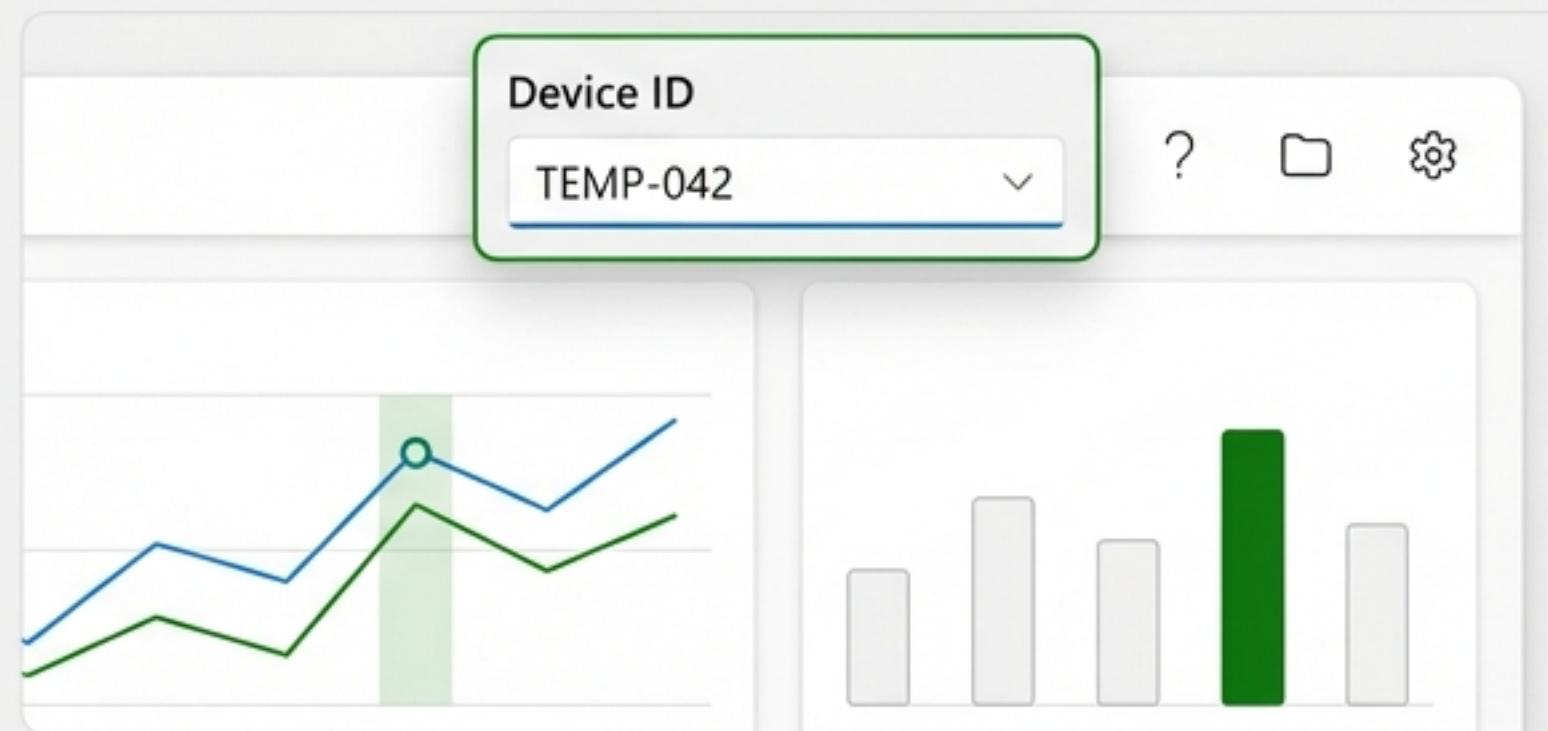
Its purpose is to visualize and explore live data through a series of configurable tiles, providing an at-a-glance view of key metrics and trends.



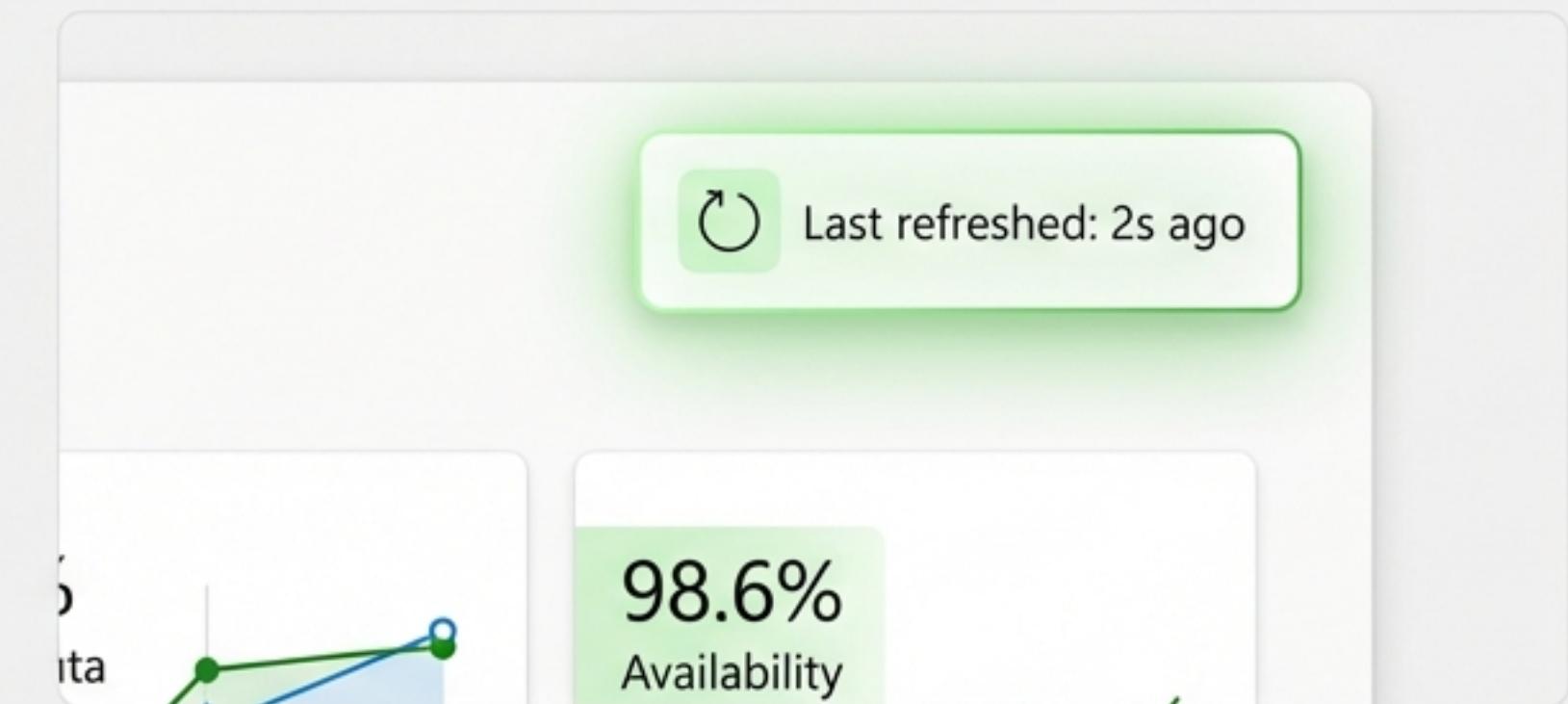
Building an Interactive and Live User Experience

Effective dashboards are not static. They must be interactive and always reflect the most current data.

Add Parameters to a dashboard to enable users to filter the data interactively, allowing them to filter the data interactively, allowing them to drill down and explore specific segments.



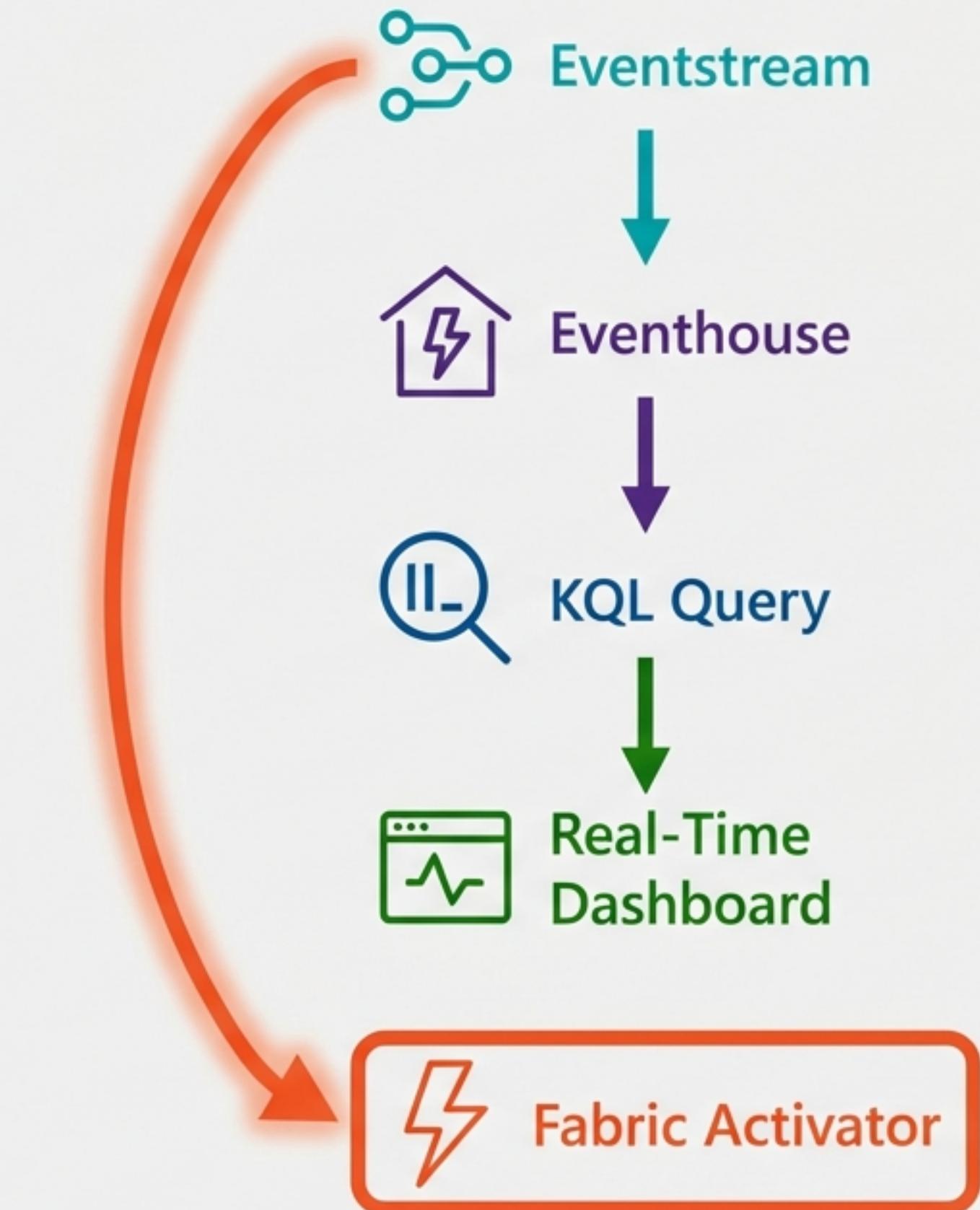
Configure Auto Refresh to ensure the dashboard queries the data source at a set interval, guaranteeing users always see the latest information without manual intervention.



The Path to Action: The Fabric Activator

The Fabric Activator is a component that monitors data from an Eventstream and triggers actions when specific conditions are met.

Its primary purpose is **automatically executing actions based on data conditions**. It acts as the bridge between real-time data and automated workflows (e.g., alerts, Power Automate flows, etc.).



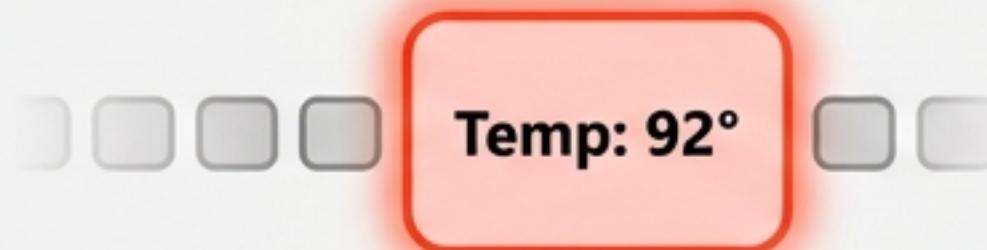
From Data Condition to Automated Trigger

The Activator operationalizes your real-time data. By setting conditions on the data values within a stream, you can initiate a wide range of automated responses.

Example Use Case

1. Condition

Condition: Temperature exceeds 90 degrees.



2. Data Destination



Fabric Activator

Data is sent to
Activator destination.

3. Triggered Action



Activator initiates a
Power Automate flow.

The Complete Data Journey, Visualized

From a raw event to a critical business outcome, Microsoft Fabric's Real-Time Intelligence components work in concert to provide a seamless, powerful, and integrated pipeline.



Real-Time Intelligence: Core Components and Capabilities

Component	Primary Role	Key Feature Highlight
Eventstream	Ingestion & Transformation	Temporal window transformations
Eventhouse	Real-Time Data Storage	Optimized for KQL databases
KQL	Querying & Analysis	Reusable logic via stored functions
Real-Time Dashboard	Visualization & Exploration	Interactive filtering with parameters
Fabric Activator	Automated Action & Triggers	Conditional, data-driven execution