Ingesting Streaming Data into Power BI

Warner Chaves
MS DATA PLATFORM MVP

@warchav sqlturbo.com

What's in this module?

Power BI Streaming Fundamentals

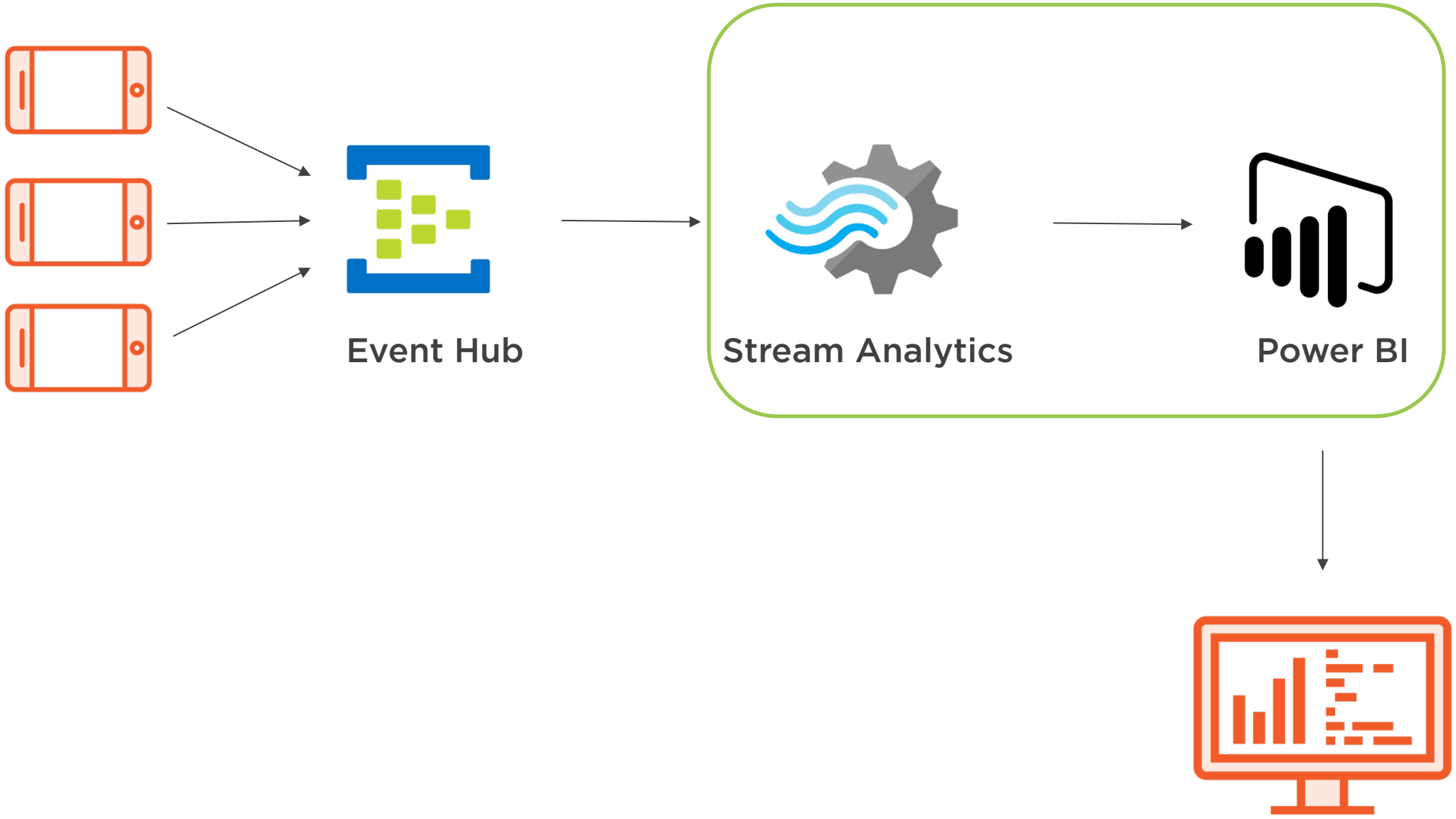
Types of Real-time Datasets

Creating a Real-time Dataset on PowerBI.com

Pushing the Stream Analytics data to Power BI through the native integration

3. Microsoft Power BI

Rich self-service reports and dashboards

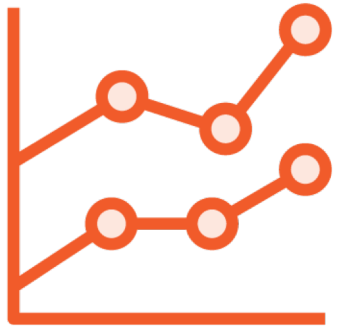

Event Hub
Stream Analytics
Power BI

Why Power BI?

Power BI and Real-time data

Azure Integration

Native real-time data support



Visualization Experience

For more Power BI learning material please refer to the Pluralsight course library.

How do we get started?

Real-time Datasets

Streaming Dataset

Push Dataset

Streaming Dataset

- Supports very fast dashboard tiles
- Limited graphics options
- Uses a Redis cache under the covers
- Keeps approximately 1 hour of data

Push Dataset

- Supports regular report creation
- All graphics supported
- Refresh rate is slower (~5 secs)
- Uses Azure SQL Database under the covers
- Keeps history of 200,000 records

PushStreaming Dataset

Streaming Dataset **Push Dataset**

Push or Streaming?

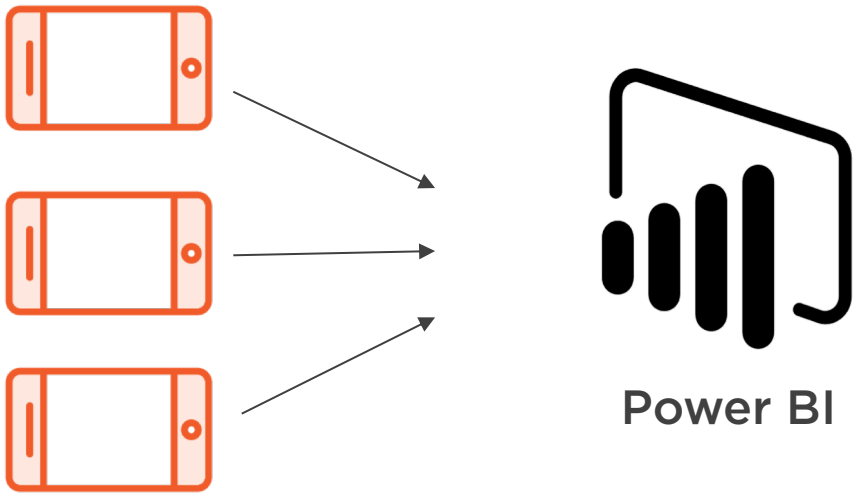
Create either one through the REST API

Create both with the PushStreaming dataset

Stream Analytics creates a PushStreaming FIFO dataset

Recommended to do PushStreaming or Push

Sending Directly to Power BI



If you have low data volume and don't need Event Hubs or Stream Analytics, you can write code that pushes data directly through Power BI's REST API.

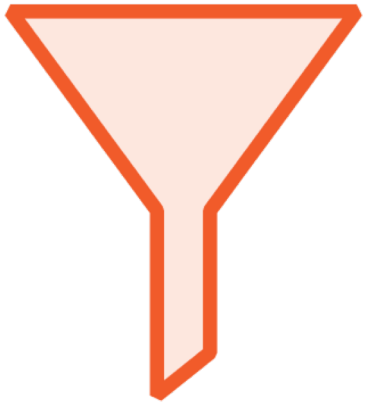
Creating a Power BI real-time dataset is supported through the REST API or the website, not on Power BI Desktop.

Demo

Creating a real-time dataset through the Power BI website

Let’s continue building our solution!

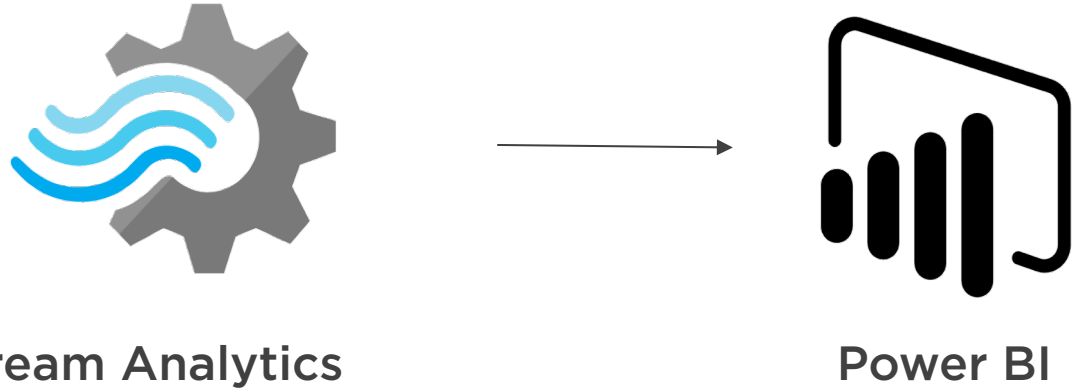
Machinery Temperature Monitoring



We have aggregated the temperature readings and added reference information to them

We want users to visualize and receive alerts on this data in real-time

Stream Analytics Integration



The Azure Portal has a built-in integration that will create a PushStreaming dataset for your Stream Analytics output.

Demo

Creating a streaming dataset through the Stream Analytics portal

What if you need to modify the real-time dataset?

Modifying the Dataset

If the modification is a new column calculation or needs to flow to multiple outputs

If the modification is to add a PowerBI Measure to the dataset

Solution Modification

We will add the text version of the temperature timestamp to the Stream Analytics job.

Demo

Modifying a real-time dataset

Summary

Power BI supports self-service reporting with real-time data

There are streaming, push and push-streaming datasets

You can create a real-time dataset through the Power BI site or the Stream Analytics integration

At this point in our solution, we have the Stream Analytics job outputting data into our Power BI dataset

Next Module:

Building Real-Time Visualizations with Power BI