

Getting Insight from Anything

Gathering hard to reach data with IoT

Dr Andrew Blance



aandrewblance

◀ Replied to Andrew Blance



Jack Kennedy 

@_jcken@qoto.org · 5 hours ago

...

@andrewblance looming forward to this -
intrigued to hear how you mucking about with
RC cars and stereo cameras makes anyone
money



13 Nov 2022 at 11:26

0 reblogs 0 favorites

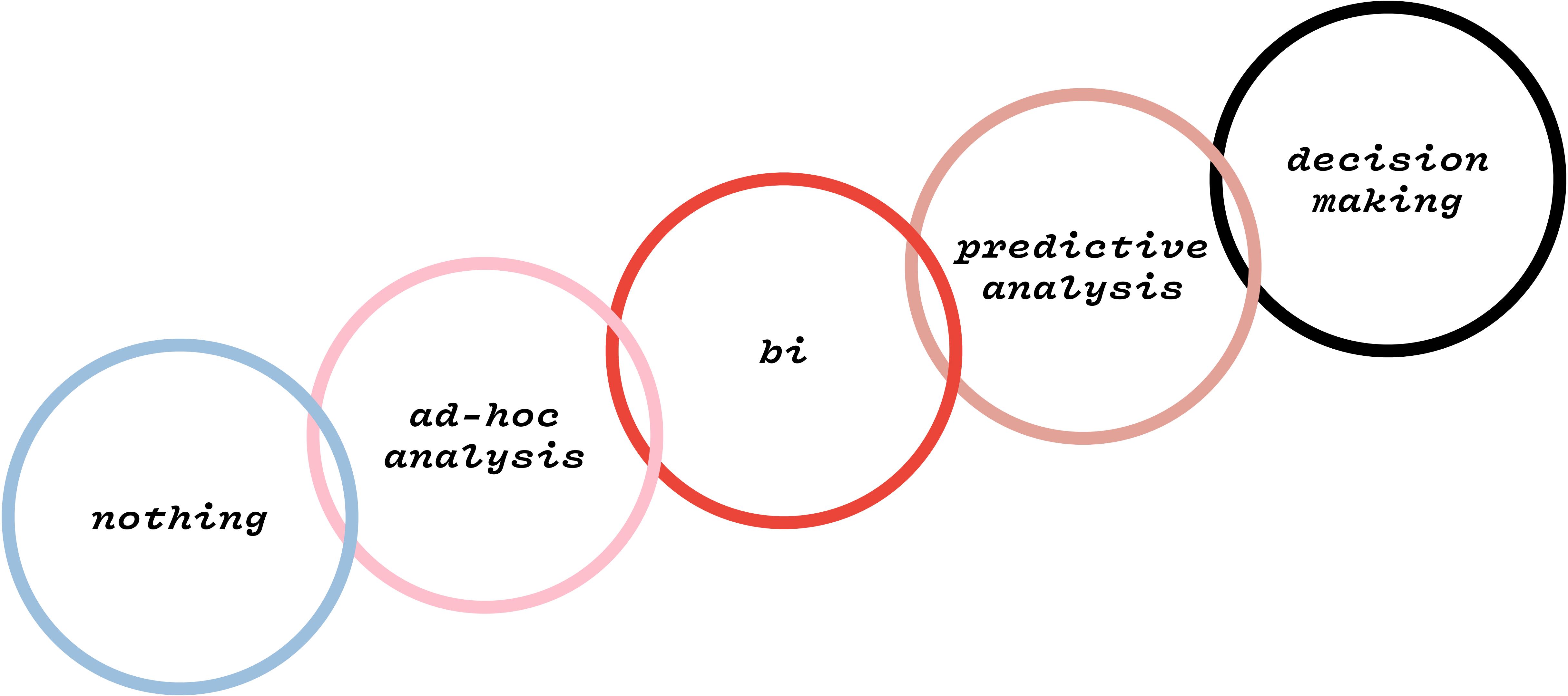
where are we?

1 . context

2 . hardware

3 . software

4 . bringing it all together



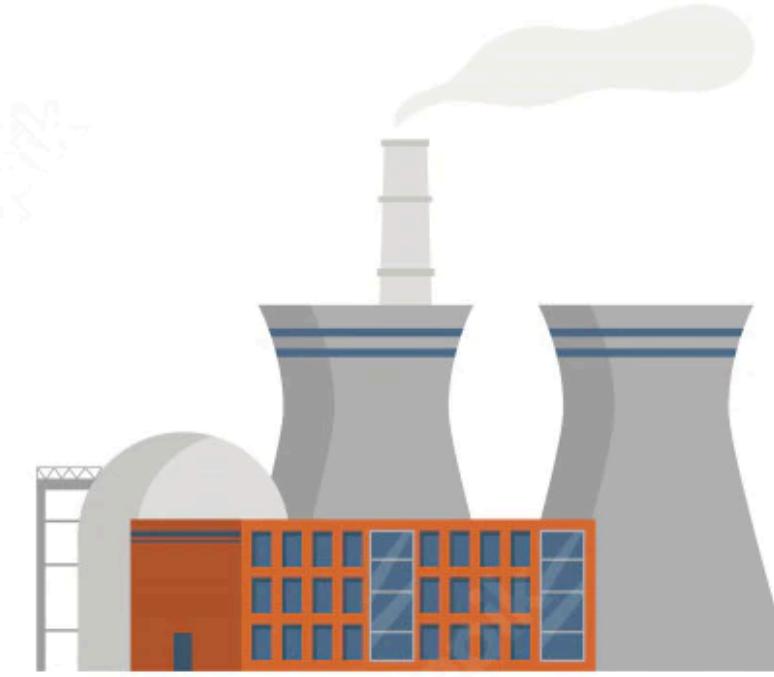
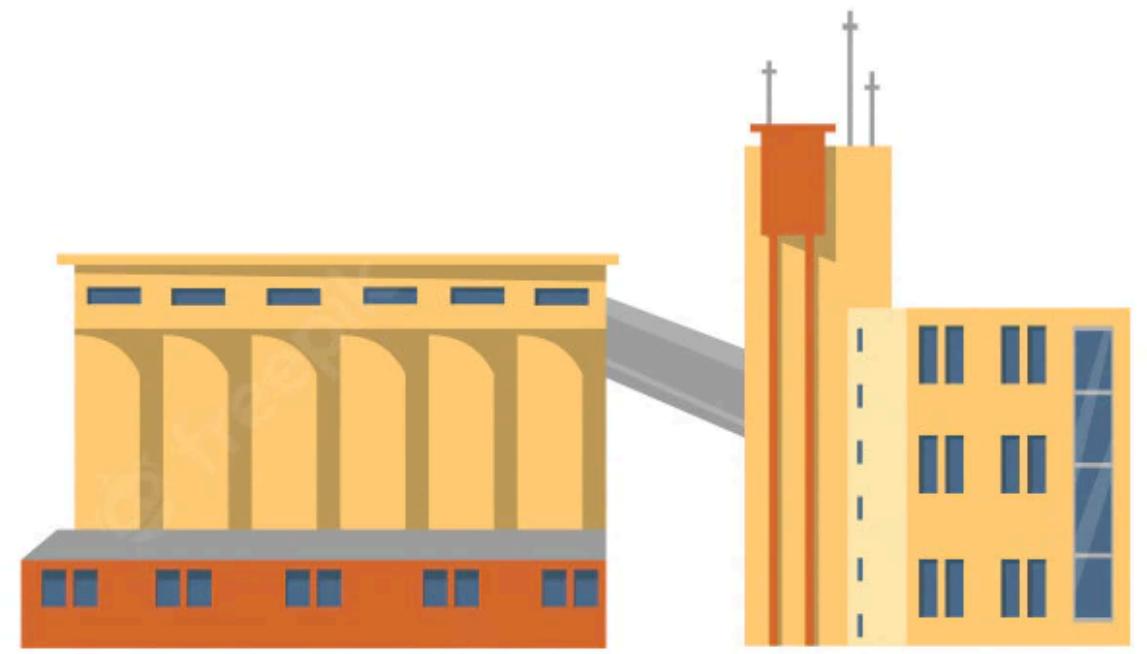
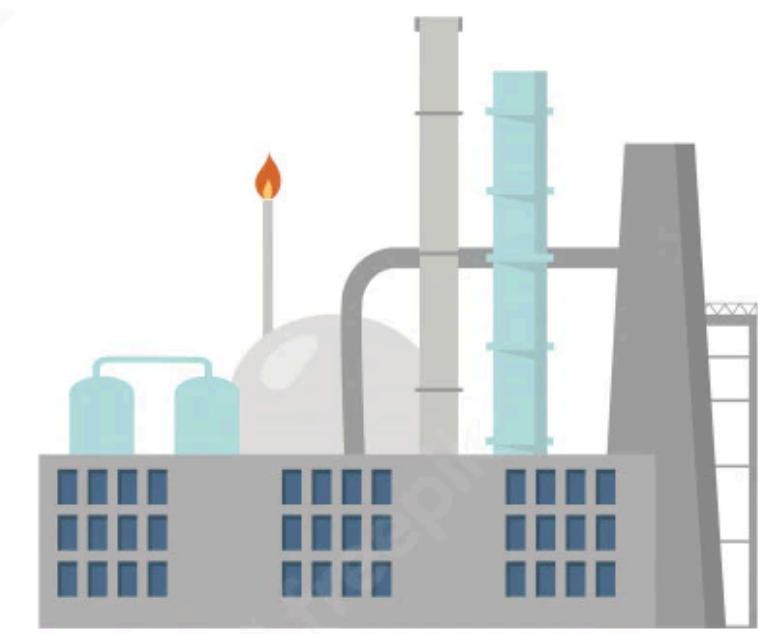
*decision
making*

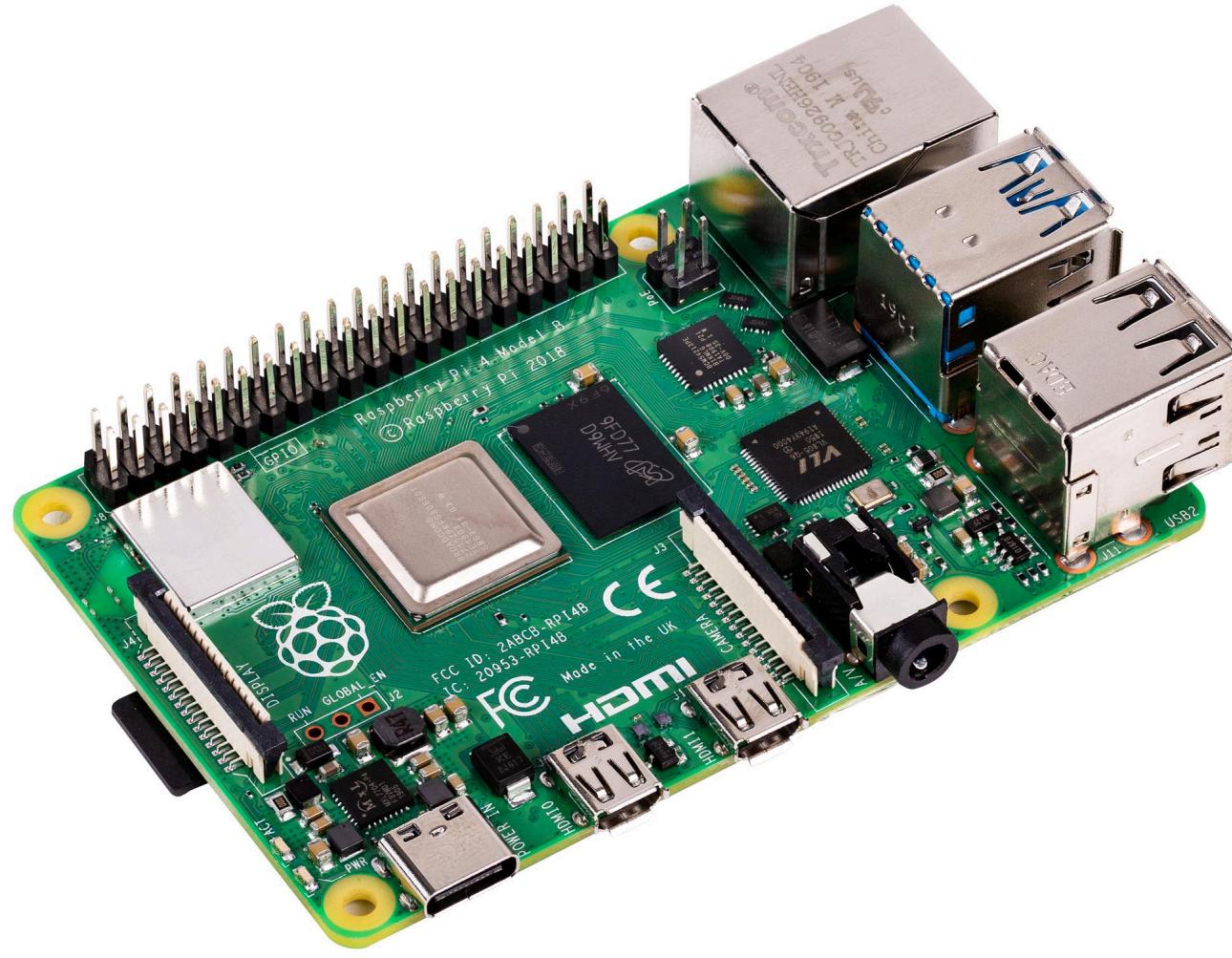
nothing

*ad-hoc
analysis*

bi

*predictive
analysis*





how to develop low-cost, non-intrusive, sensor systems

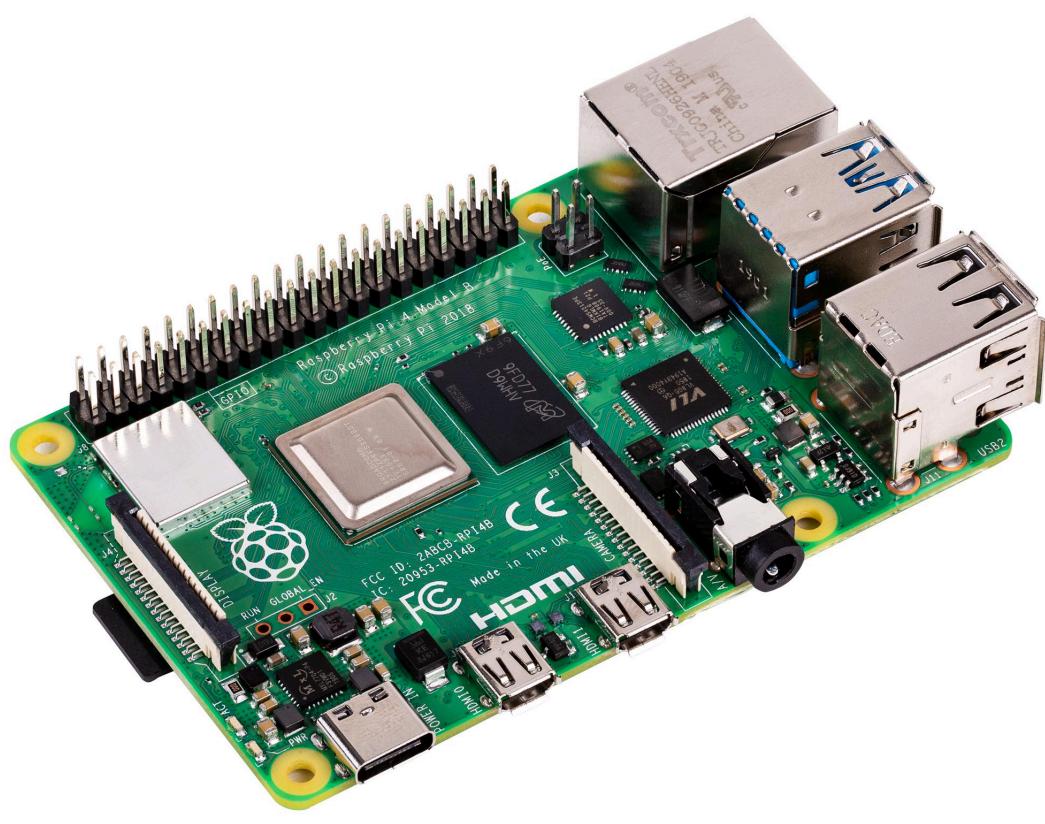
where are we?

1. context

2. *hardware*

3. software

4. bringing it all together

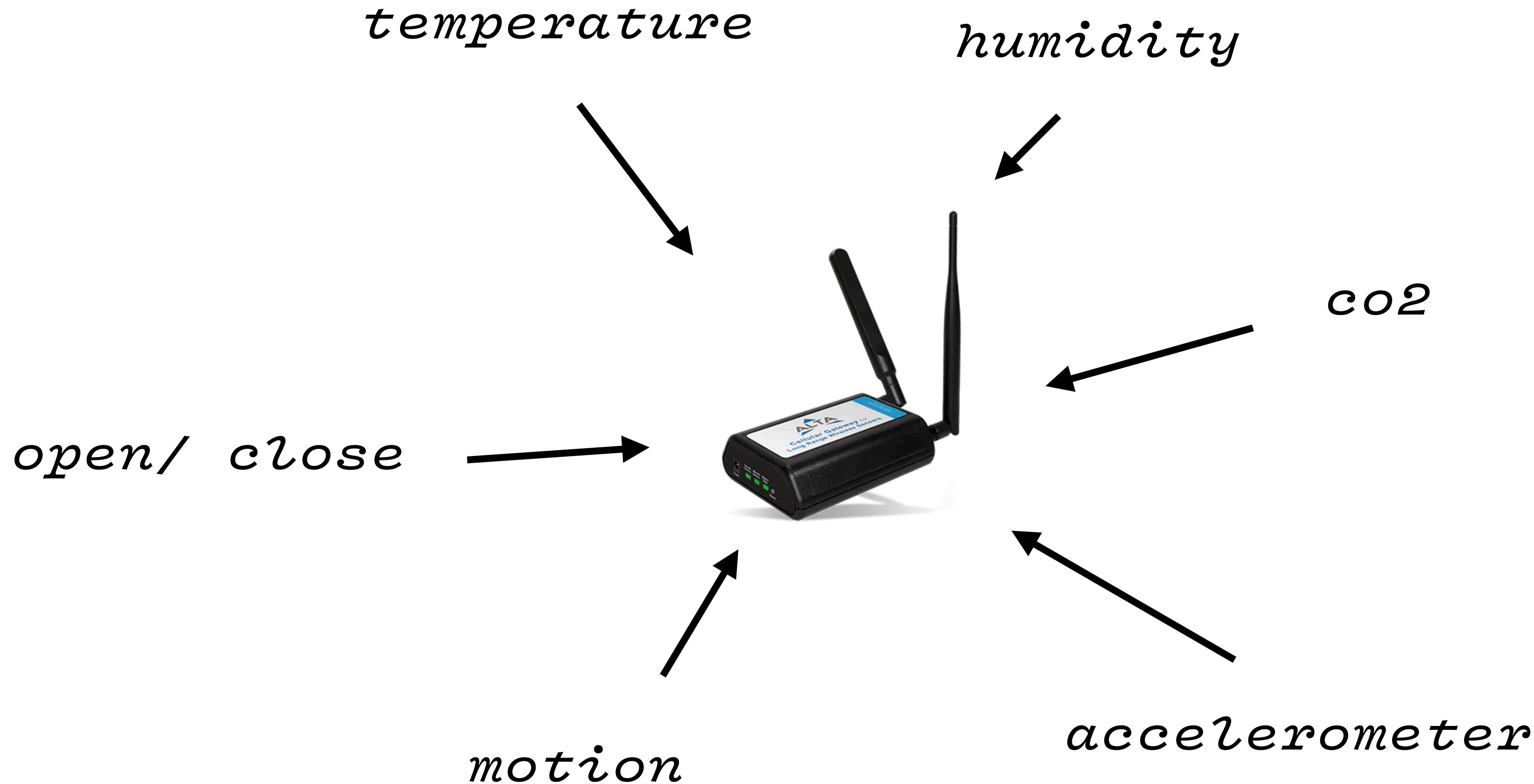


+



+





where are we?

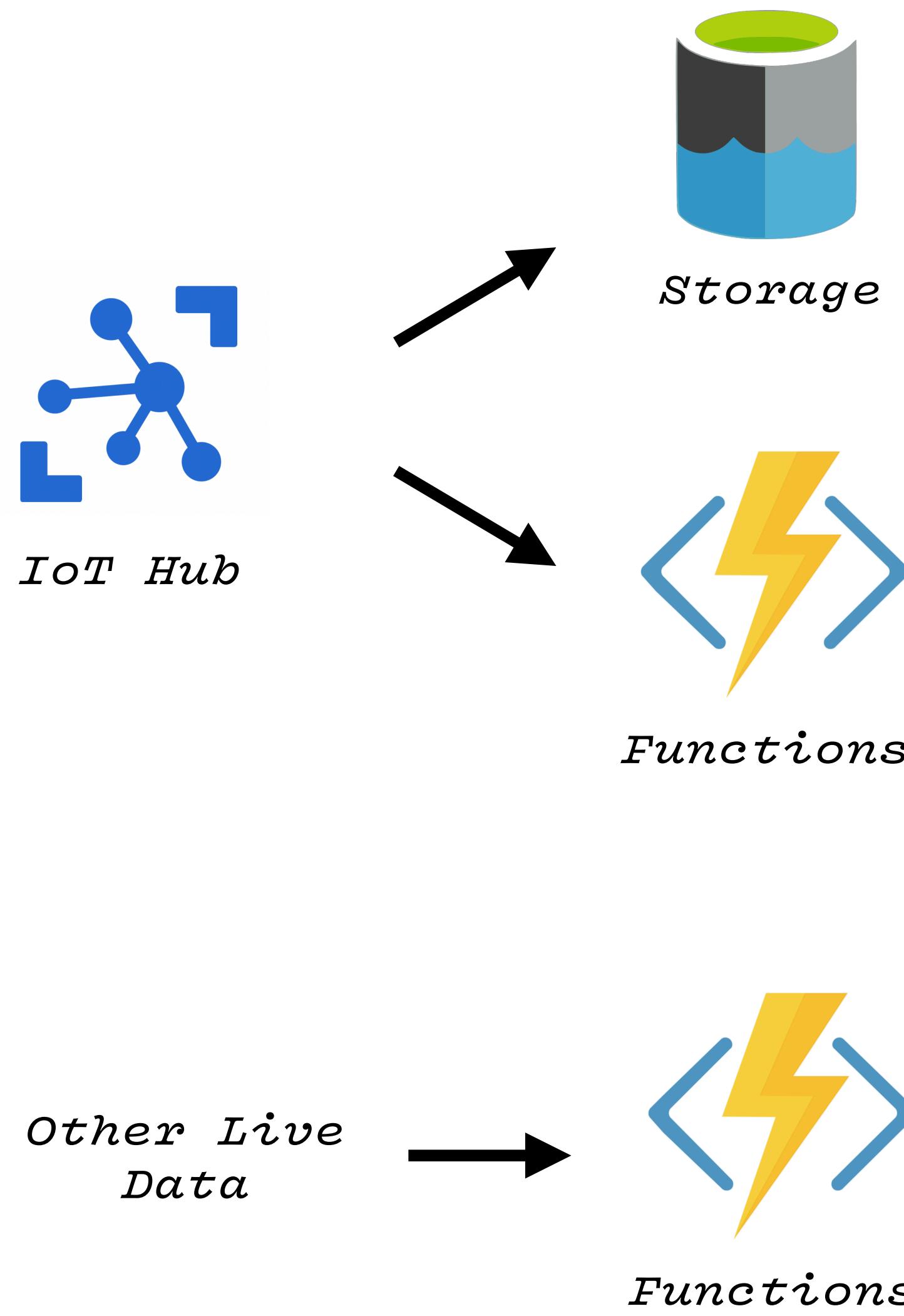
1. context

2. hardware

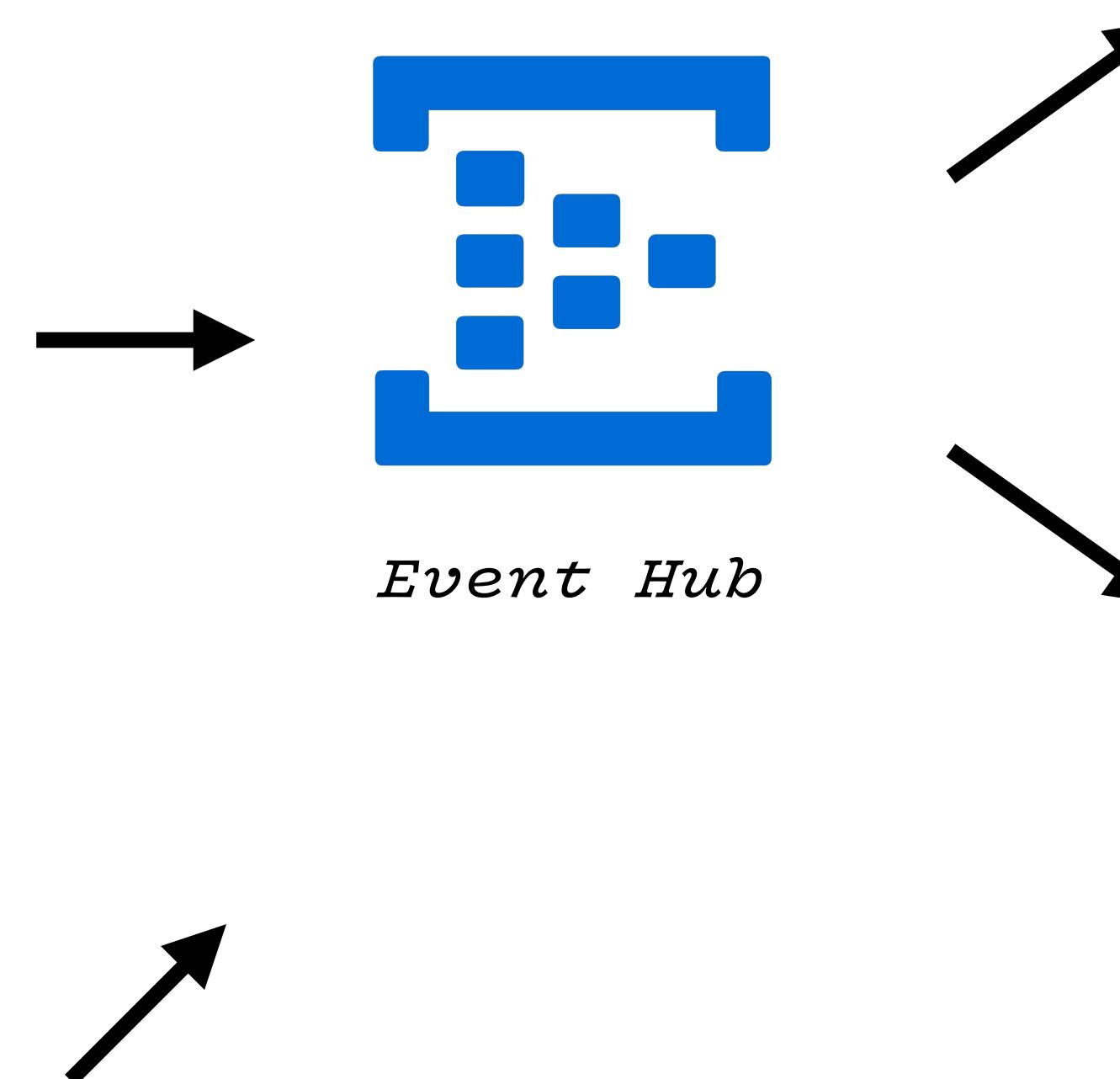
3. software

4. bringing it all together

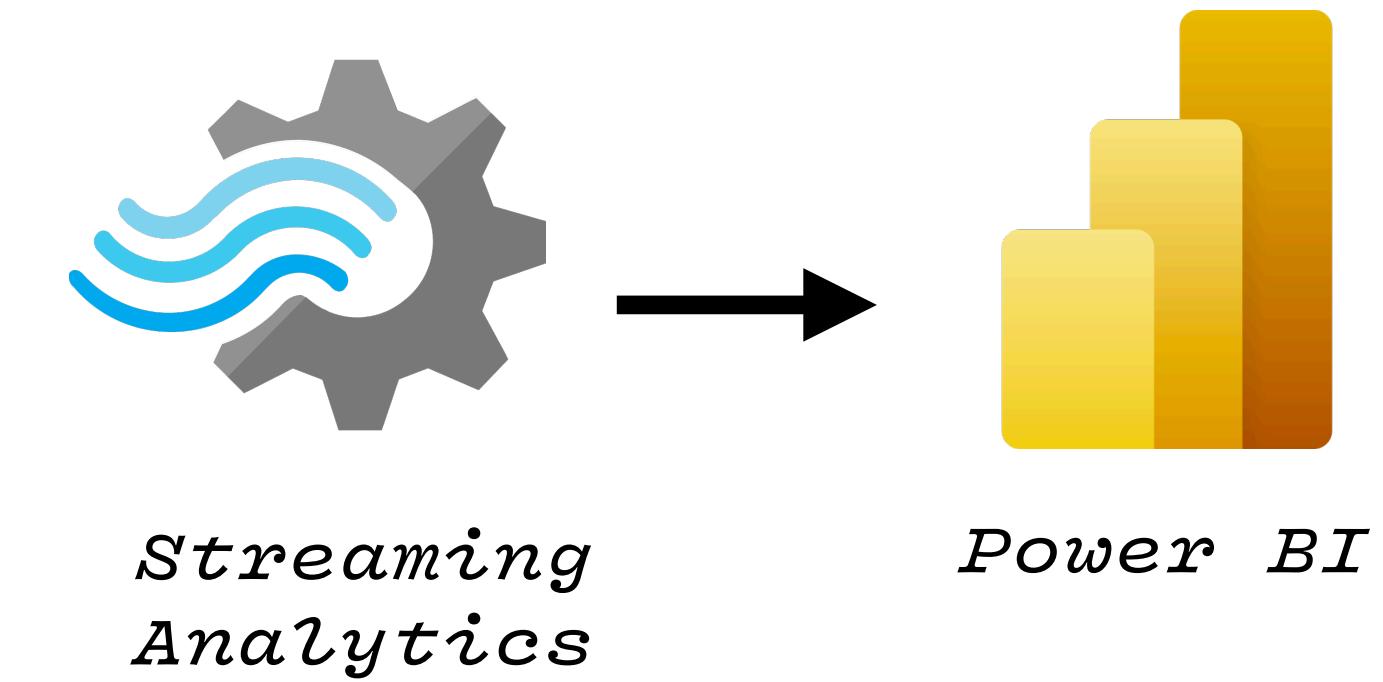
STREAMING DATA INPUT



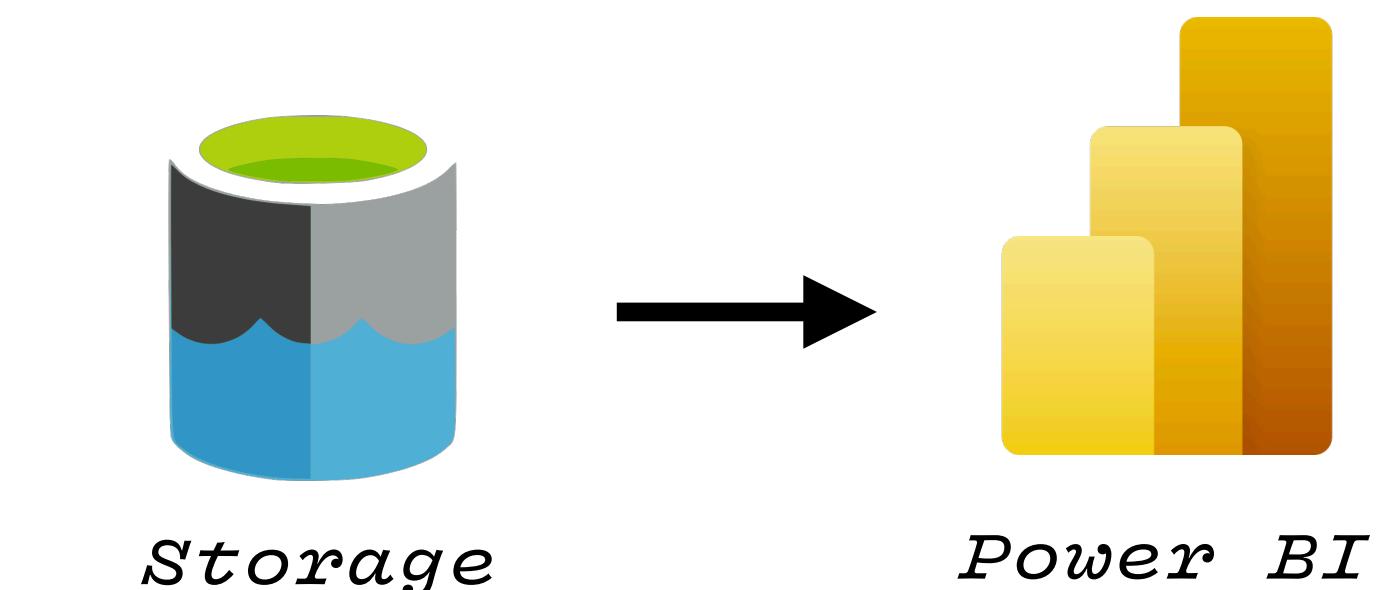
GENERIC EVENT HANDLING



LIVE



HISTORICAL





IoT Hub

Home >

iot-monnittest-dev-01

IoT Hub

🔍 Search



➡ Move



Delete



Refresh



Feedback

📅 Activity log

👤 Access control (IAM)

🏷️ Tags

🔧 Diagnose and solve problems

⚡ Events

⌚ Pricing and scale

Device management

💻 Devices

☁️ IoT Edge

🛠️ Configurations + Deployments

🌐 Updates

📄 Queries

Hub settings

📍 Built-in endpoints

🔗 Message routing

📁 File upload

☁️ Failover

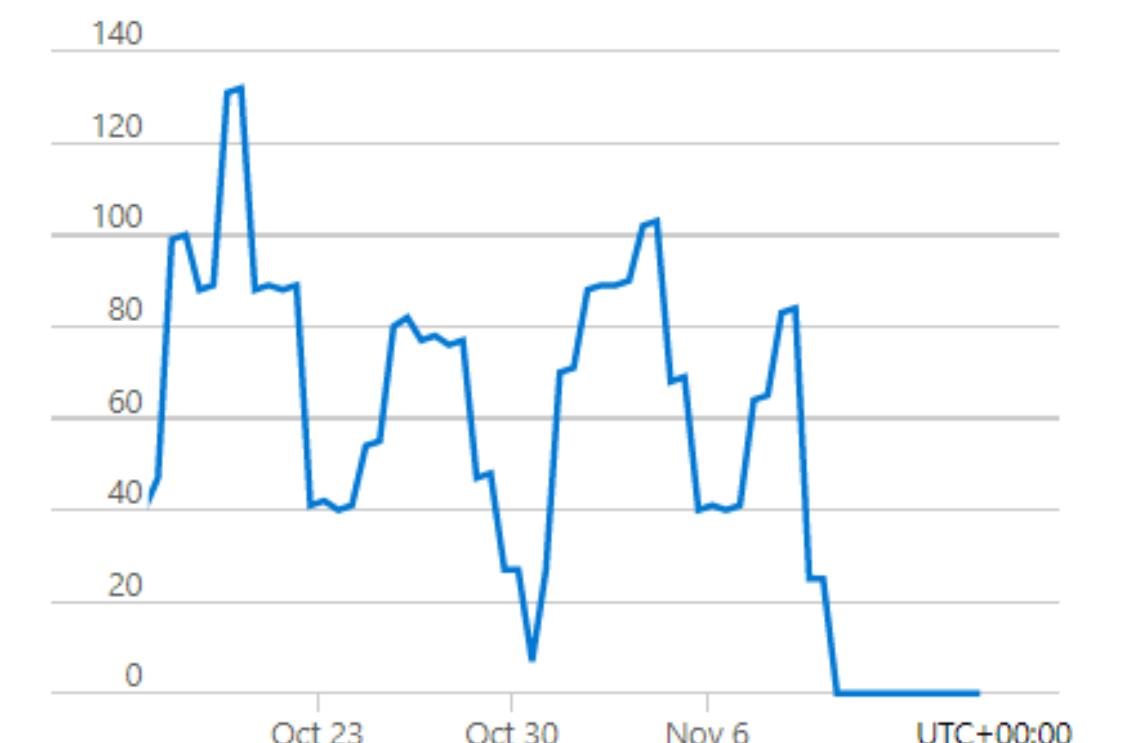
☰ Properties



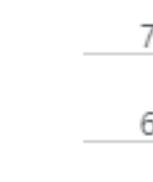
IoT Hub Usage

- Messages used today: 0
- Daily messages quota: 400000 ⓘ
- IoT Devices: 1

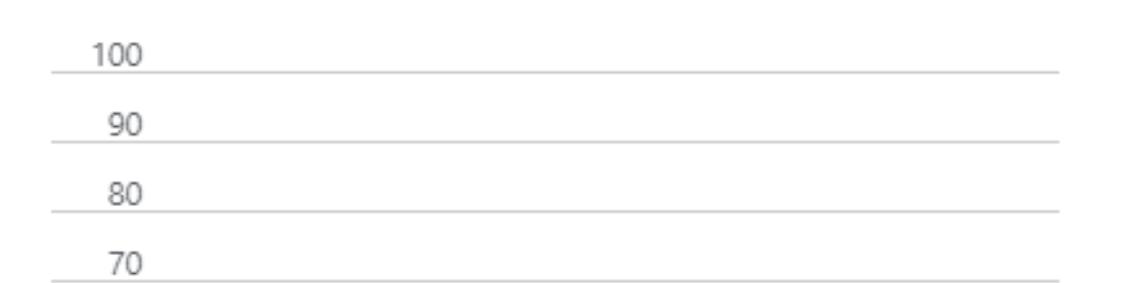
Number of messages used

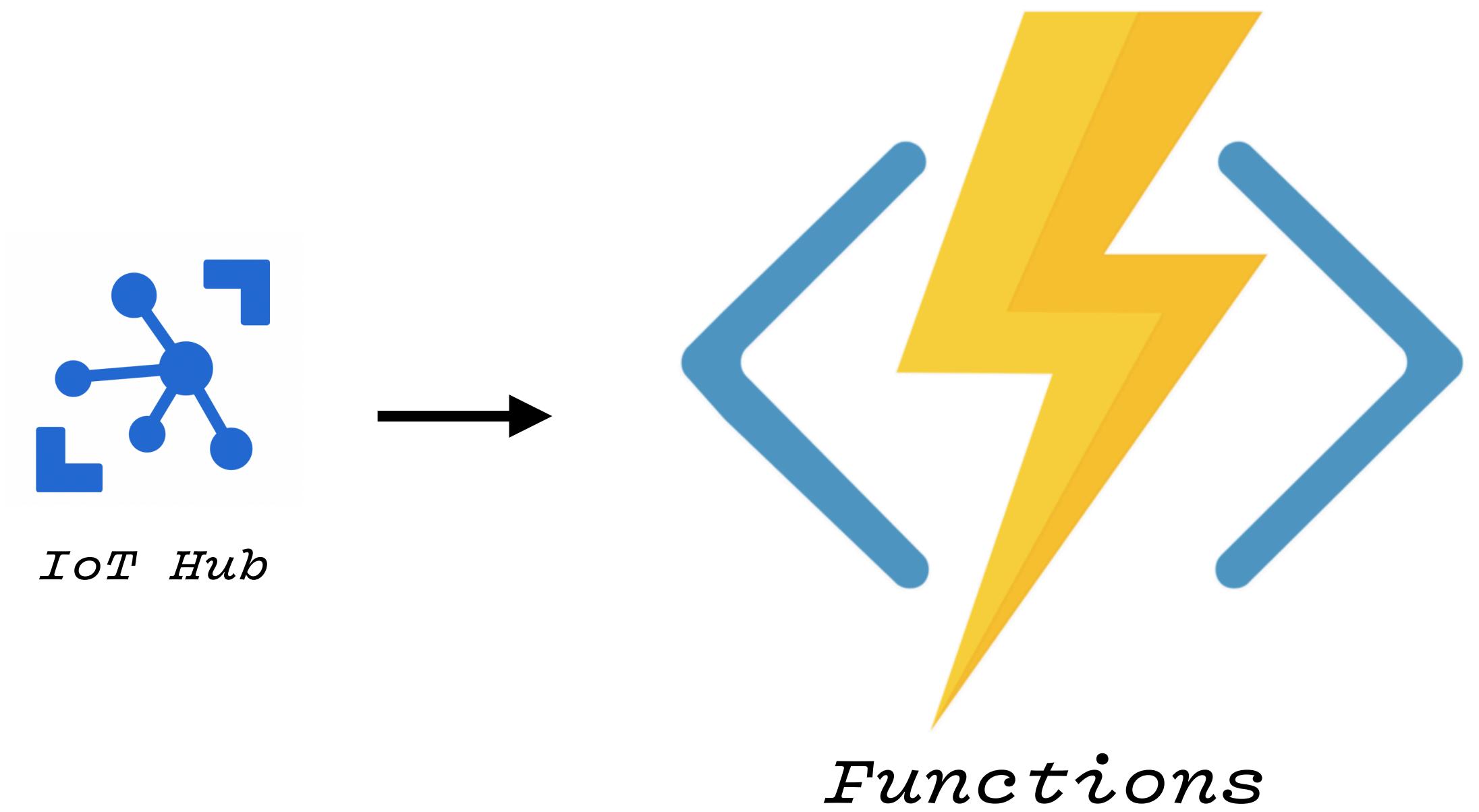


Device to cloud messages



Connected Devices





BlobTrigger | Code + Test

Function

Search Save Discard Refresh Test/Run Test integration Upload

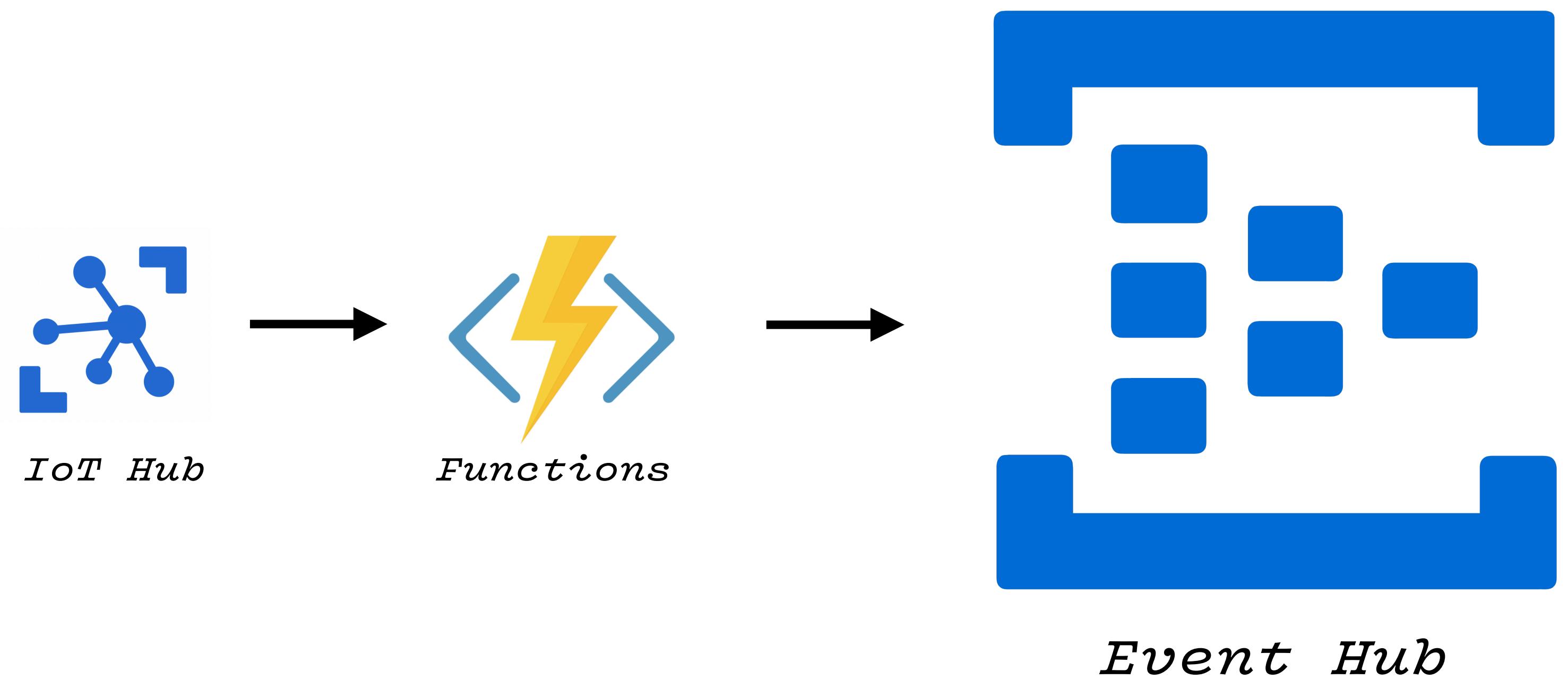
[fx] Overview ⚠ Adding third party dependencies in the Azure portal is currently not supported for Linux Consumption Function Apps. Click here to setup local environment. [Learn more](#)

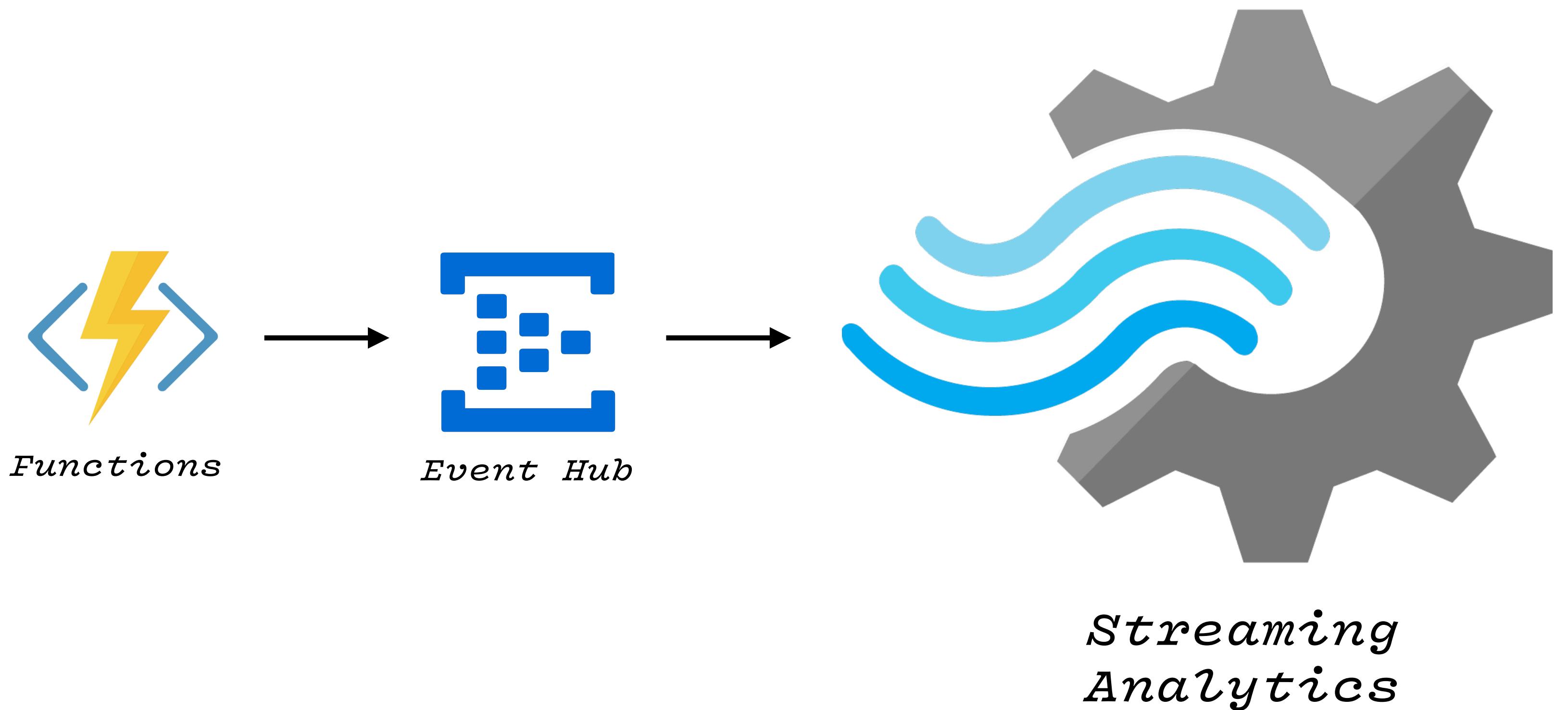
Developer fa-datacleaner-dev-01 \ BlobTrigger \ __init__.py

Code + Test Integration Monitor Function Keys

```
1 import logging
2 import json
3 import base64
4 import azure.functions as func
5 from azure.storage.blob import BlobClient
6 from pathlib import Path
7
8 def main(inputblob: func.InputStream):
9     logging.info('Python Blob trigger function processed %s', inputblob.name)
10    clear_texts = inputblob.read().decode('utf-8').split("\n")
11
12    original_path = Path(inputblob.name)
13    new_path_base = "messages" / Path(*original_path.parts[2:-1]) / original_path.stem
14    logging.info("new path:%s", new_path_base)
15
16    for line_num, clear_text in enumerate(clear_texts):
17        logging.info("line num:%s", line_num)
18        raw_json = json.loads(clear_text)
19        body = raw_json["Body"]
20        decoded_body = base64.b64decode(body)
21        decoded_json = json.loads(decoded_body)
22
23        if "sensorMessages" not in decoded_json:
24            logging.info('this message is shit')
```

Logs





<> sa-IoTCoffeeMachine | Query ☆ ⋮

Stream Analytics job

Search

Query language docs Open in VS Code Share feedback Refresh

- Overview
- Activity log
- Access control (IAM)
- Tags
- Diagnose and solve problems
- Properties
- Locks
- Job topology
- Inputs
- Functions
- Query**
- Outputs

- Inputs (2)
 - </> BlobInput
 - ScissorsTemperature
- Outputs (4)
 - </> CoffeeMachineDataset
 - motion
 - MotionHistorical
 - ScissorsMotion
- Functions (2)
 - datetimeToInt
 - ListSplit

Test query Save query Discard changes

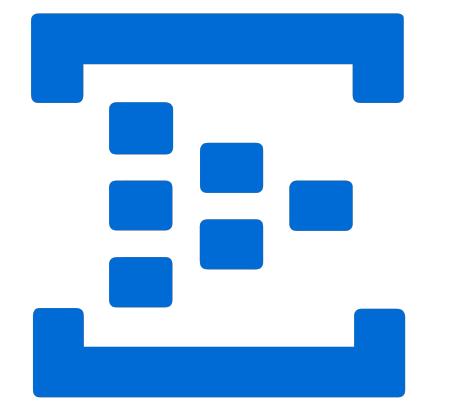
```
2 sensorId,
3 sensorName,
4 System.Timestamp AS Timestamp,
5 (TopOne() OVER (ORDER BY CAST(messageDate AS DateTime) DESC)).messageDate AS MessageDate,
6 CAST(TopOne() OVER (ORDER BY CAST(messageDate AS DateTime) DESC).rawData AS bit) AS IsMotion
7 INTO
8 [motion]
9 FROM
10 [BlobInput] TIMESTAMP BY messageDate
11 WHERE
12 dataType = 'MotionDetect'
13 GROUP BY
14 sensorId,
15 sensorName,
16 HoppingWindow(Duration(hour, 1), Hop(second, 10))
```

Input preview Test results Function signatures

Test query to show results here

Ready

Ln 1. Col 1



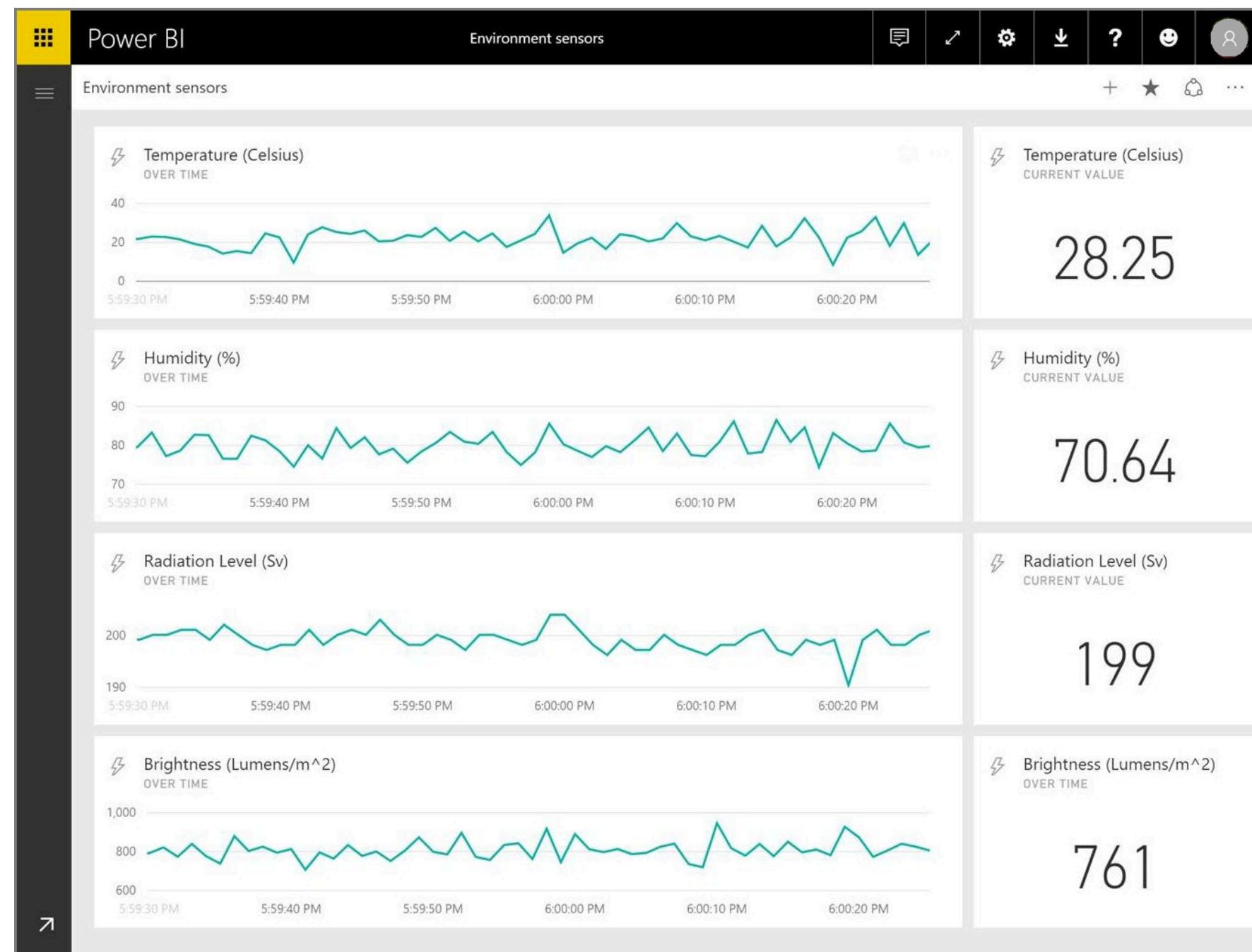
Event Hub



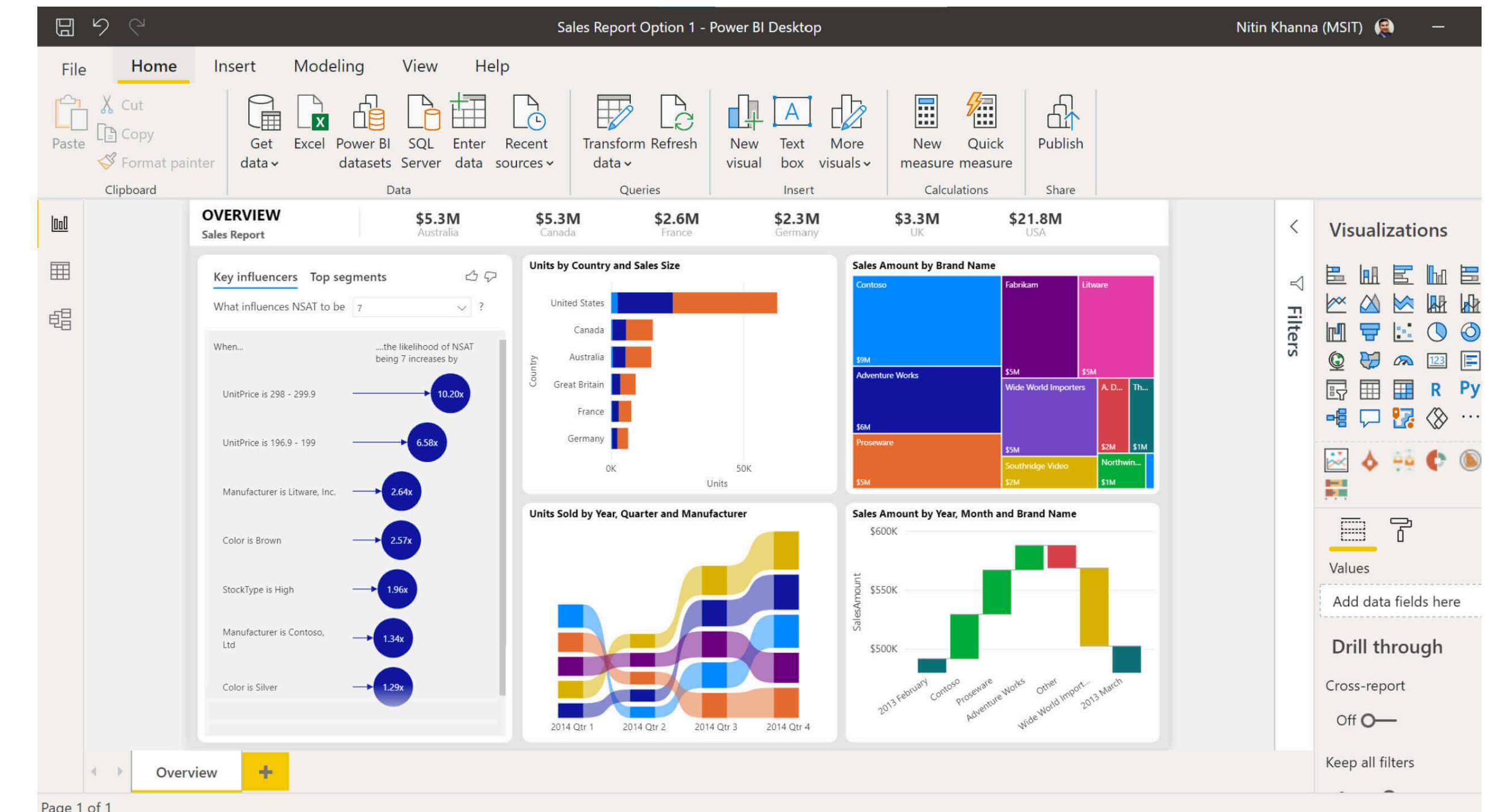
*Streaming
Analytics*



Power BI



vs



where are we?

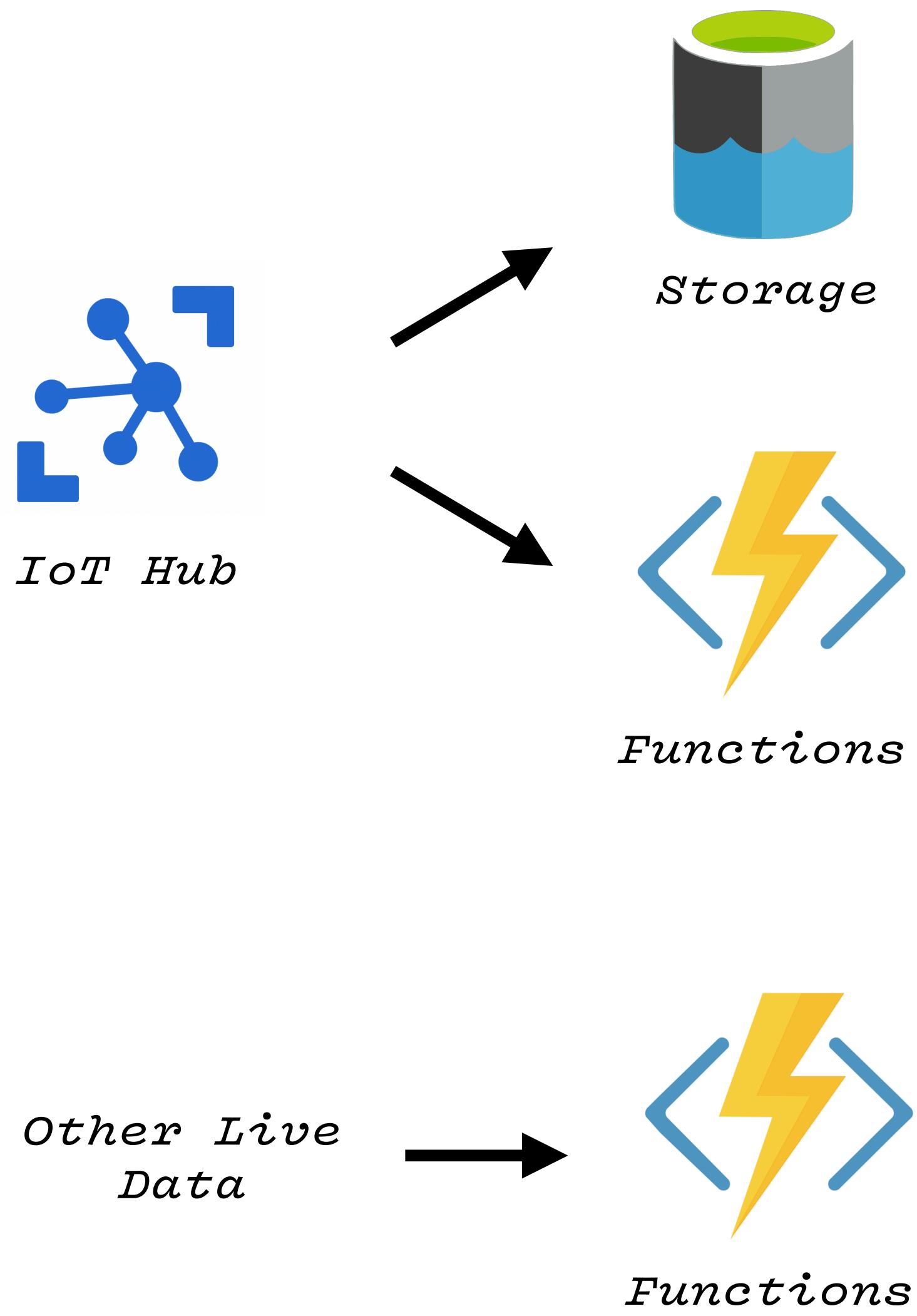
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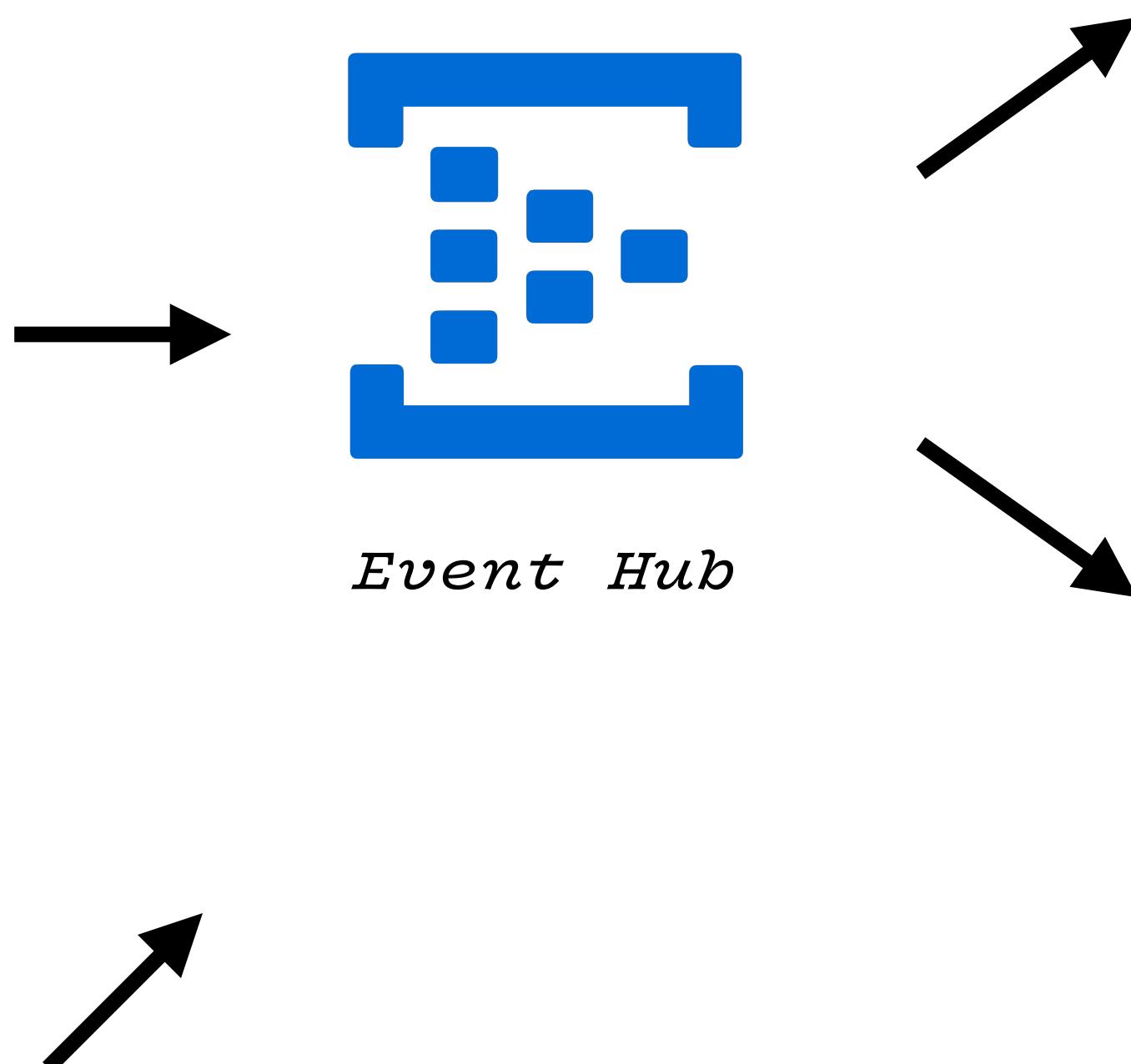
3. software

4. bringing it all together

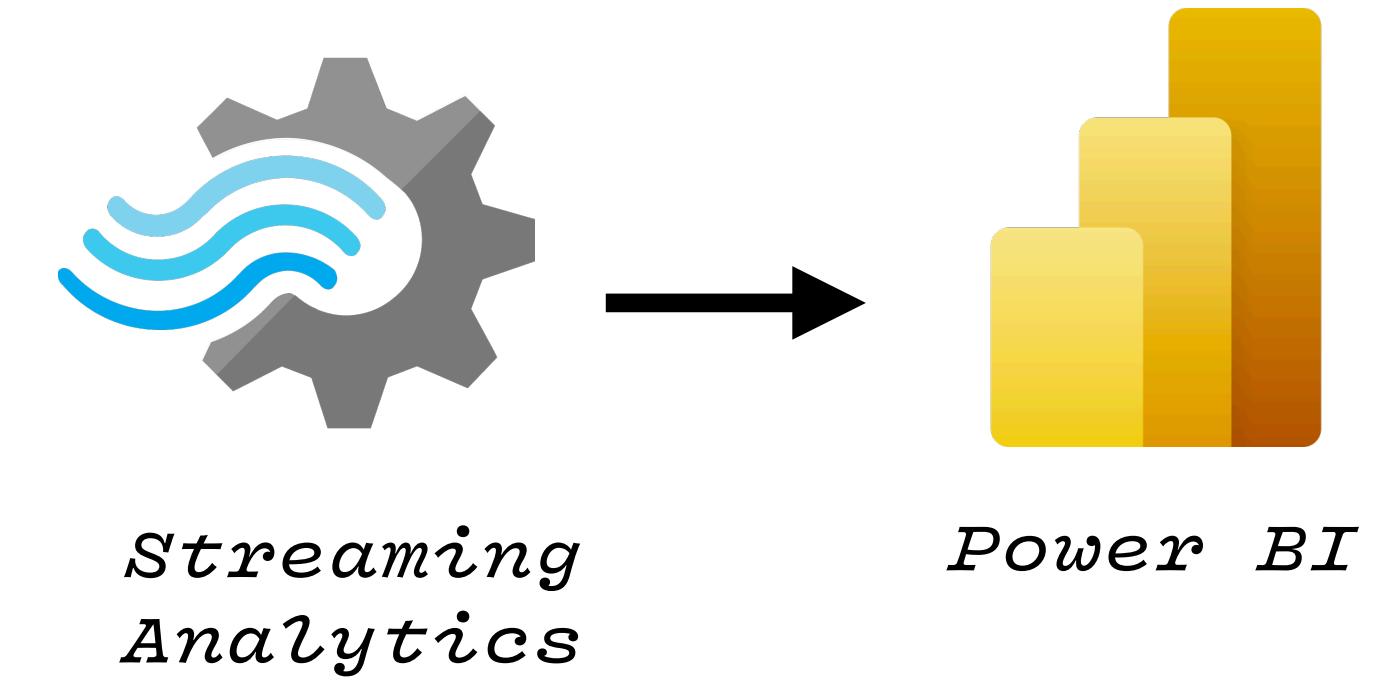
STREAMING DATA INPUT



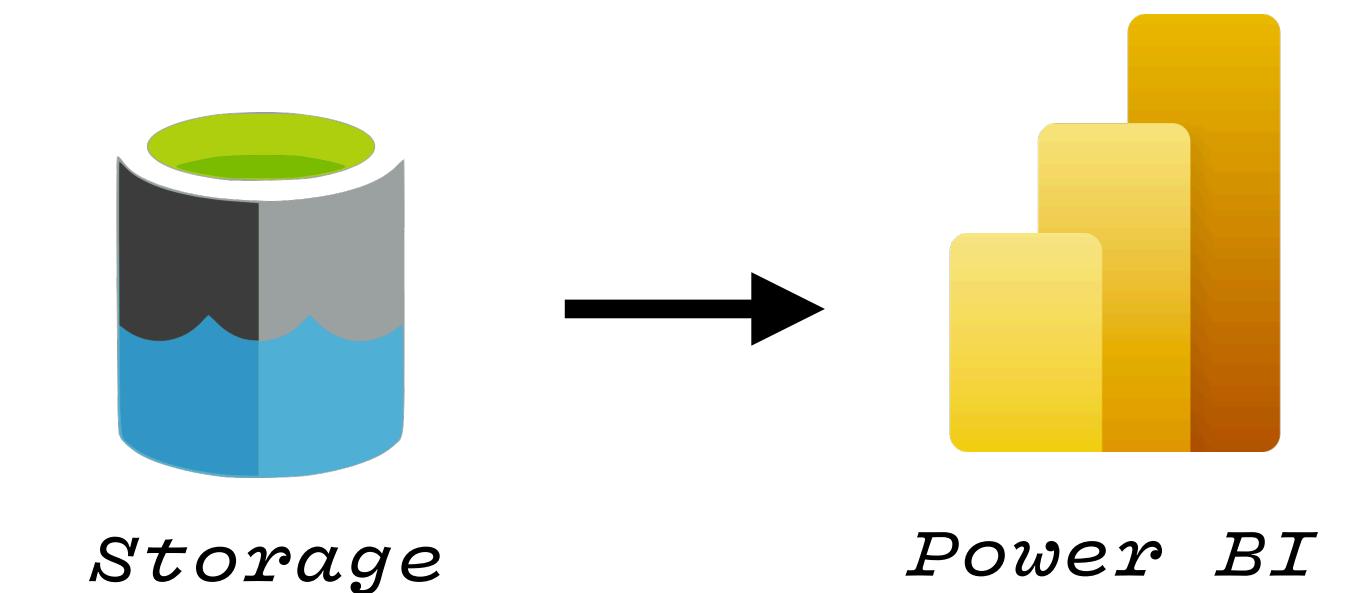
GENERIC EVENT HANDLING

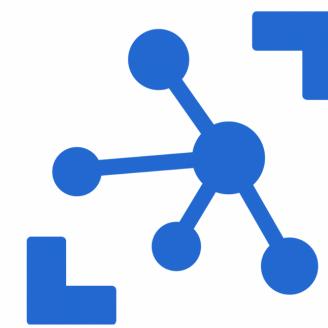


LIVE



HISTORICAL

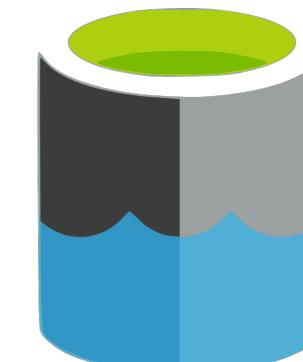




IoT Hub



*Time Series
Analysis*



Storage



Machine Learning

Dr Andrew Blance

 **aandrewblance**

BRAINS

= on the outside =

