IoT is also an Integration Challenge

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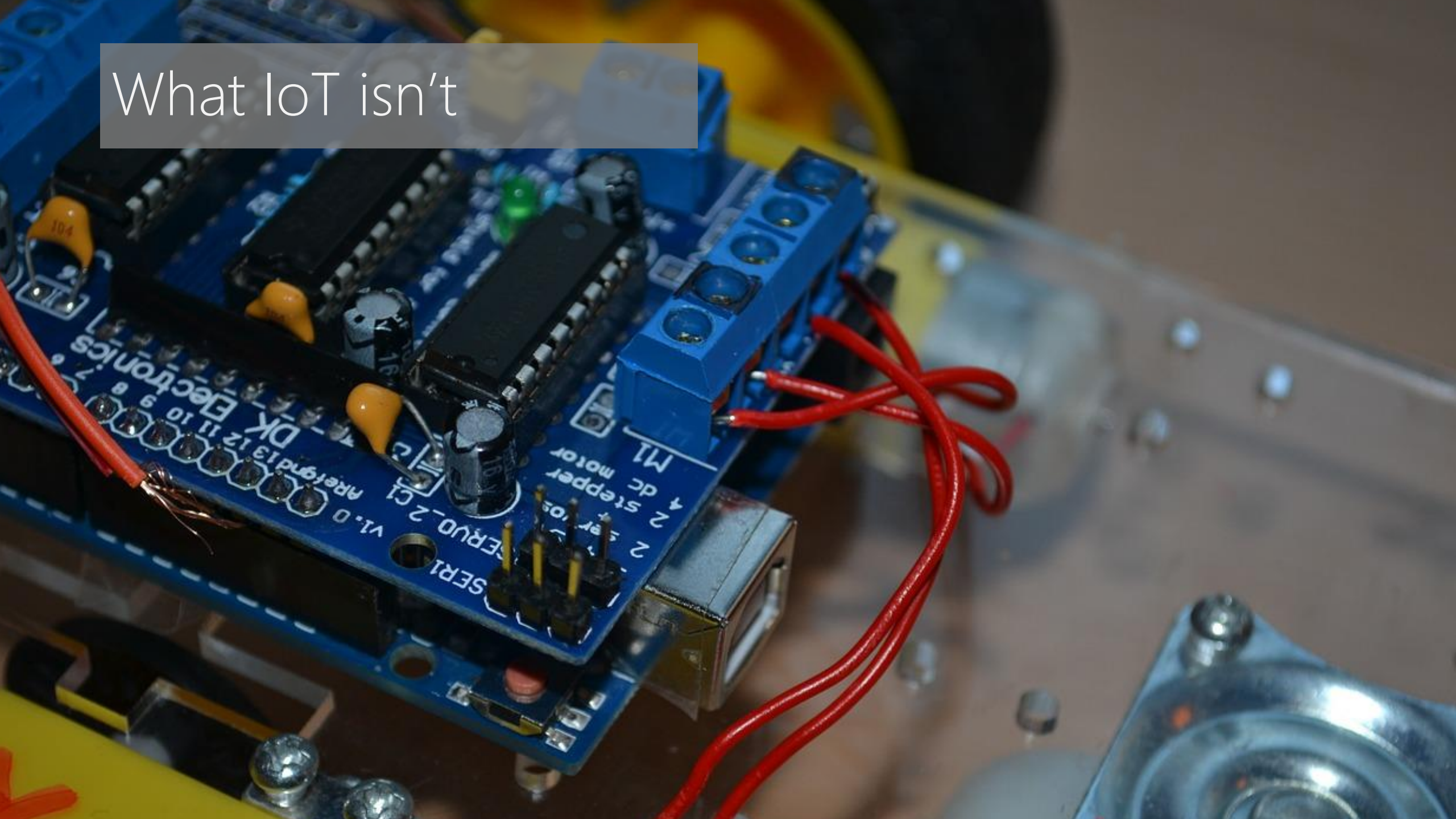
Who is this guy?

- Microsoft MVP for Azure
- Microsoft Regional Director
- Global Azure Bootcamp Admin
- Global Integration Bootcamp Admin
- Integration Down Under Admin
- Co-author “Robust Cloud Integration with Azure”
- Proud Australian and Fremantle Dockers fan
- Widower, father of 3 boys
- Hater of cancer

What IoT isn't



It’s not just about the hardware

- Internet of Things and Hardware have become conflated
- All statistics are x number of devices by year y…
- Hardware design, build, optimization and production takes a long time
- Build the solution using simulators, e.g., Device Simulation IoT Solution Accelerator, whilst hardware in development

Nobody buys “IoT”

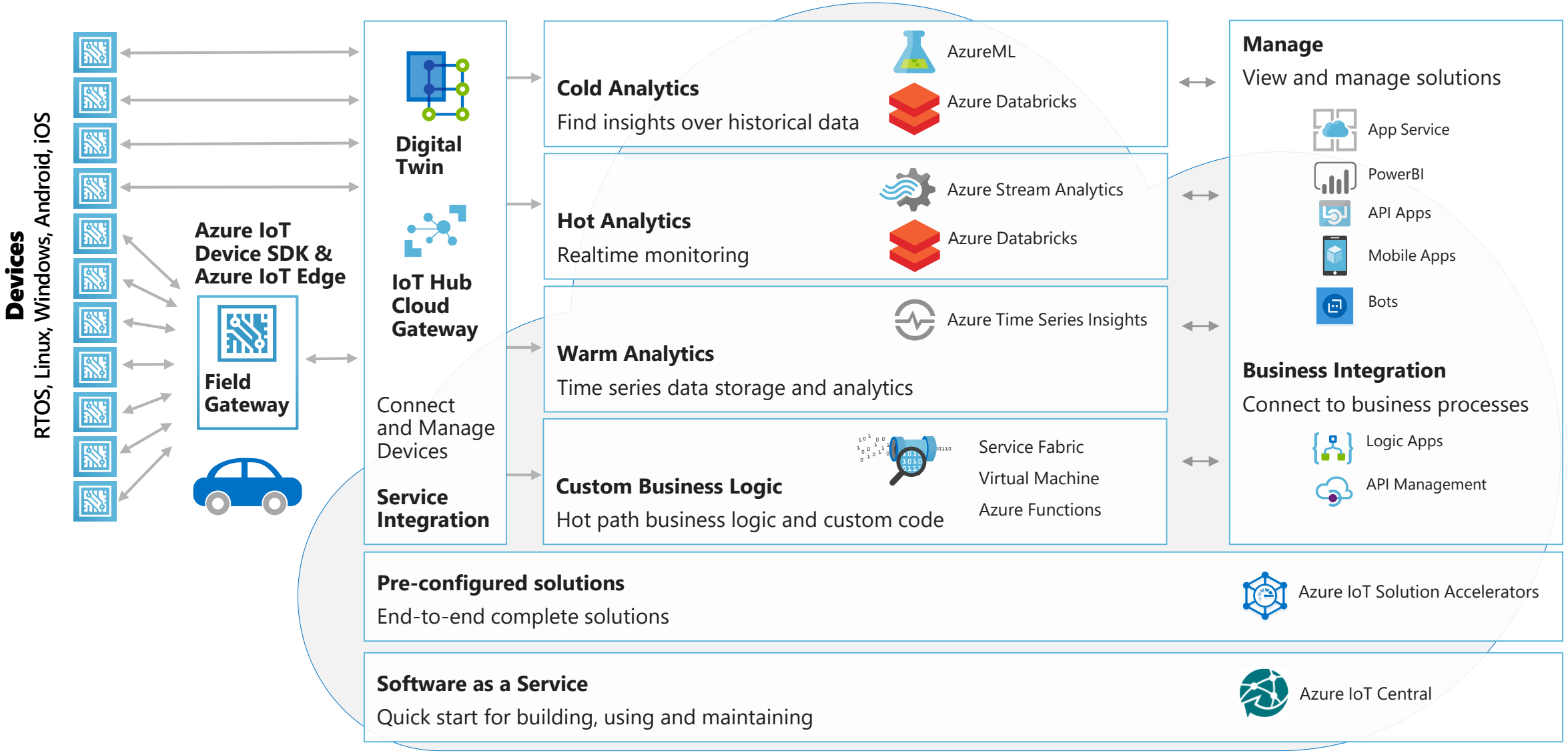
What IoT is

It's really about the data

- Devices, Gateways, Edge
- Connectivity
- Data Storage and Engineering
- Machine Learning and Artificial Intelligence
- Action

IoT Value Chain

Microsoft Azure IoT



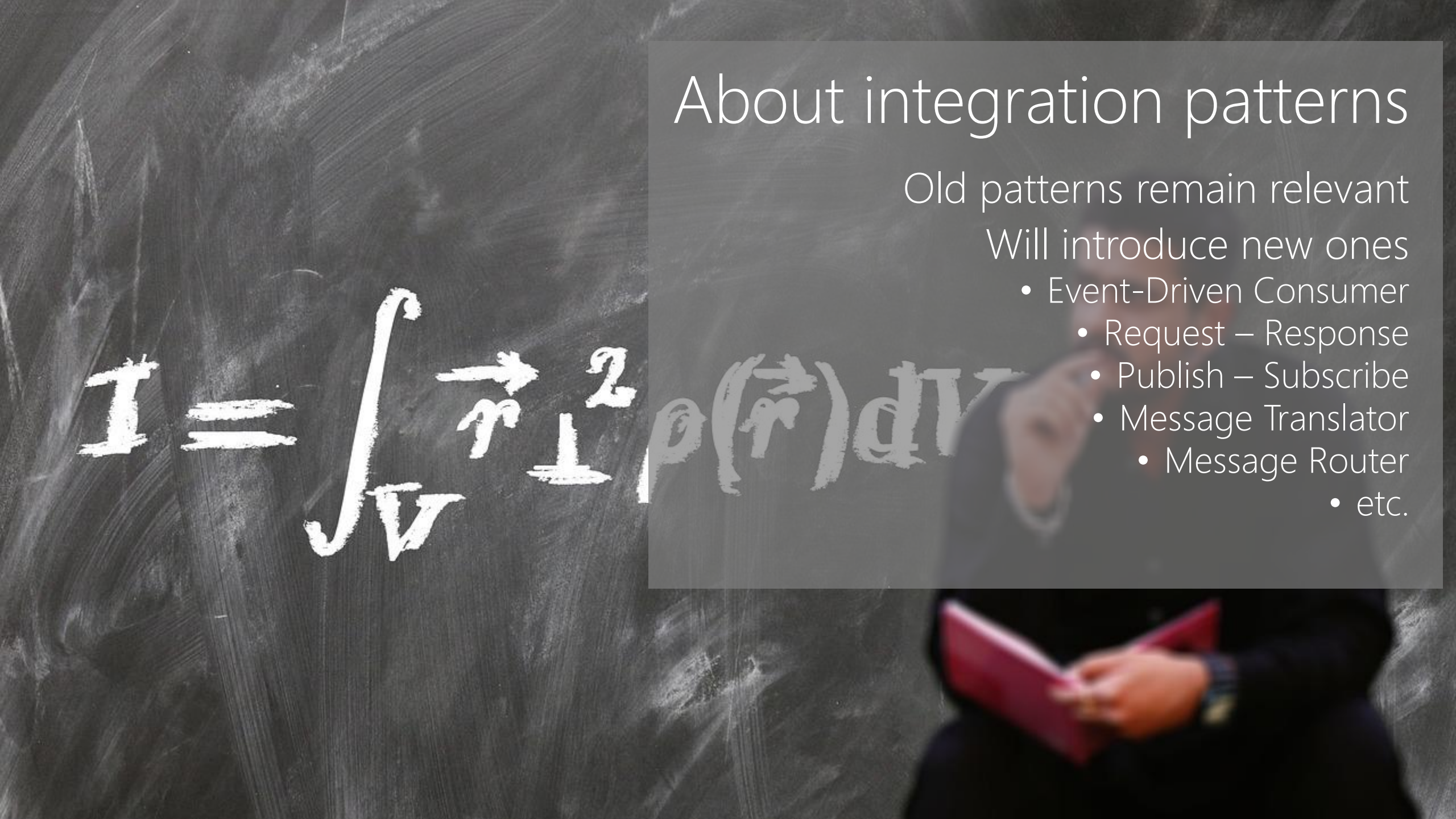

INTEGRATION
LIGHTYEAR
EVERYWHERE

About integration patterns

Old patterns remain relevant

Will introduce new ones

- Event-Driven Consumer
- Request – Response
- Publish – Subscribe
- Message Translator
- Message Router
- etc.

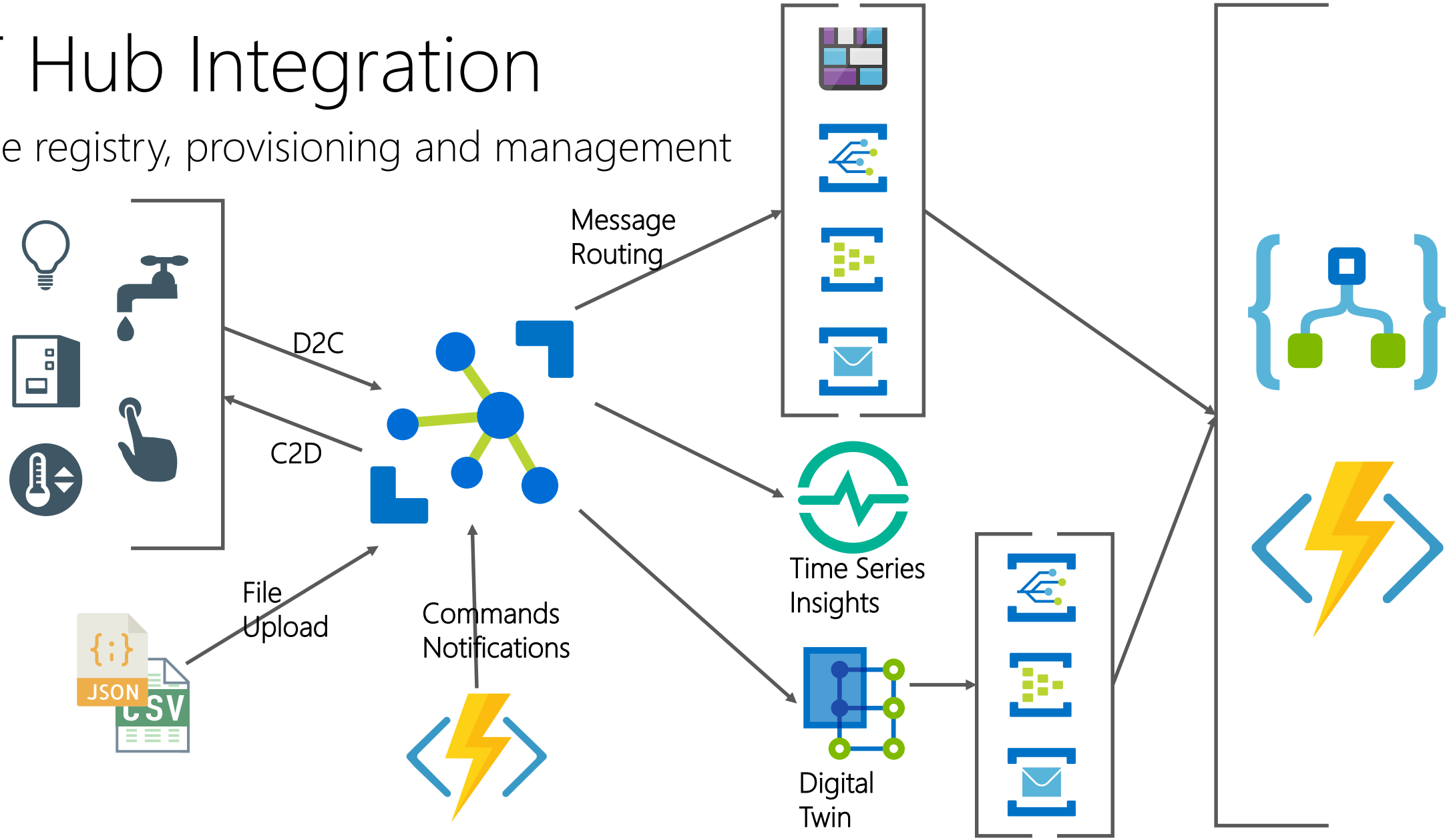


Communication in IoT

Telemetry	1-way device-to-cloud
Query	2-way device-to-cloud
Notification	1-way cloud-to-device
Command	2-way cloud-to-device

IoT Hub Integration

Device registry, provisioning and management



Remember it's about the data

- Azure Data Factory for ETL and batch processing
- Stream Analytics for real-time processing
- Azure Databricks for Big Data solutions
- Cosmos DB for large scale unstructured data storage
- Cognitive Services APIs for democratized machine learning

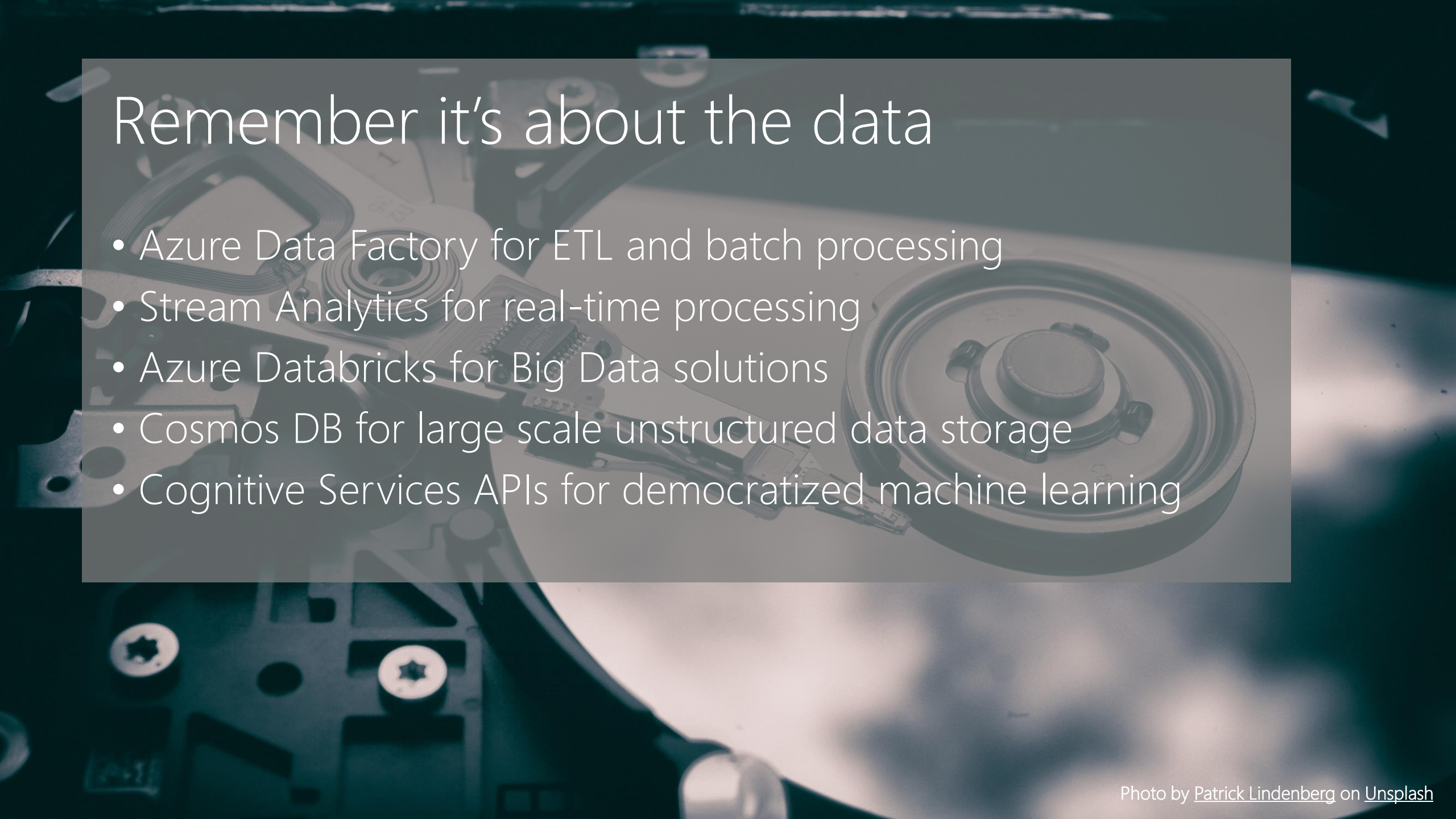


Photo by Patrick Lindenberg on Unsplash

Azure Data Factory

- ETL in the Cloud
- Copy Activity
- Supports SSIS
- Integration Runtime in the Cloud or on-premises
- Databricks for compute
- Mapping Data Flows (preview)
- 80+ Connectors

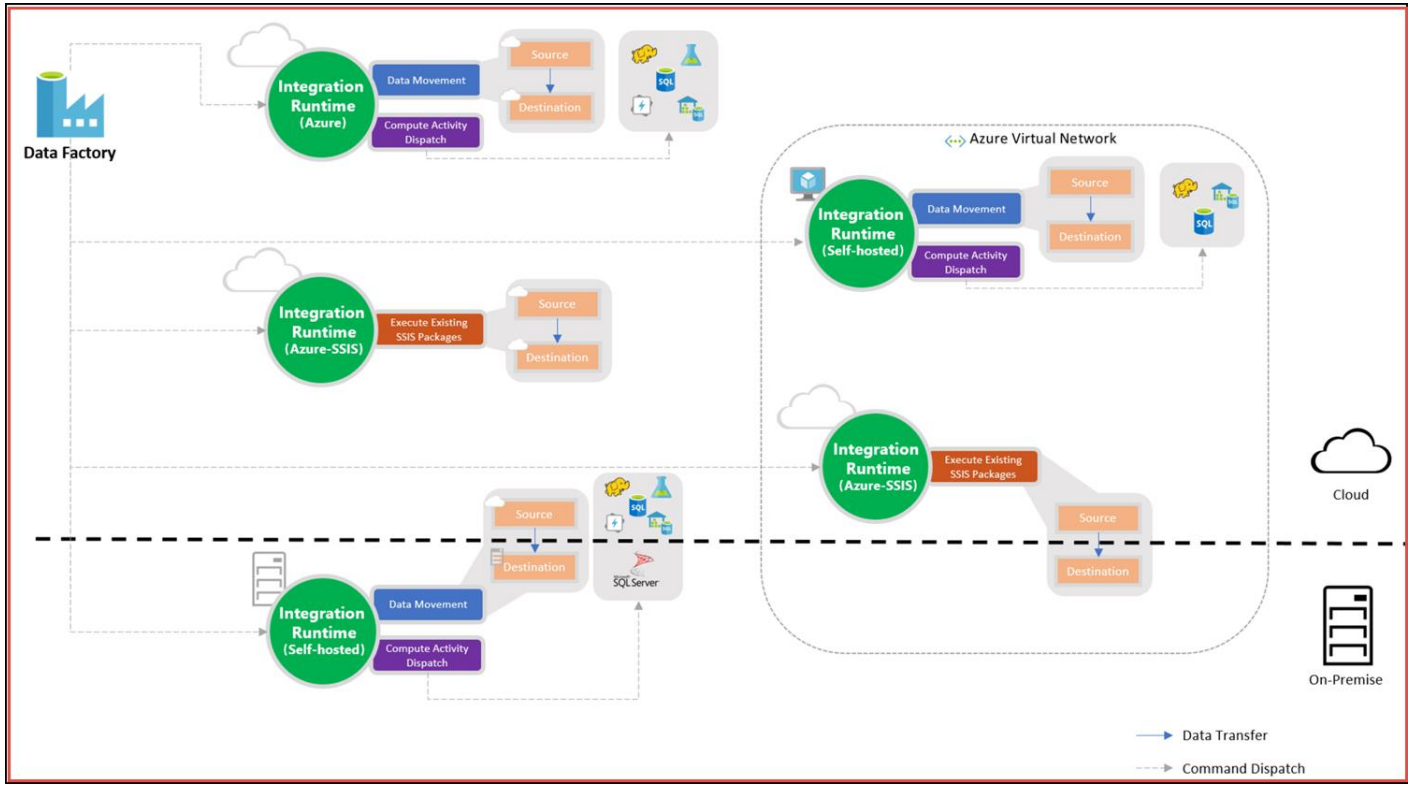
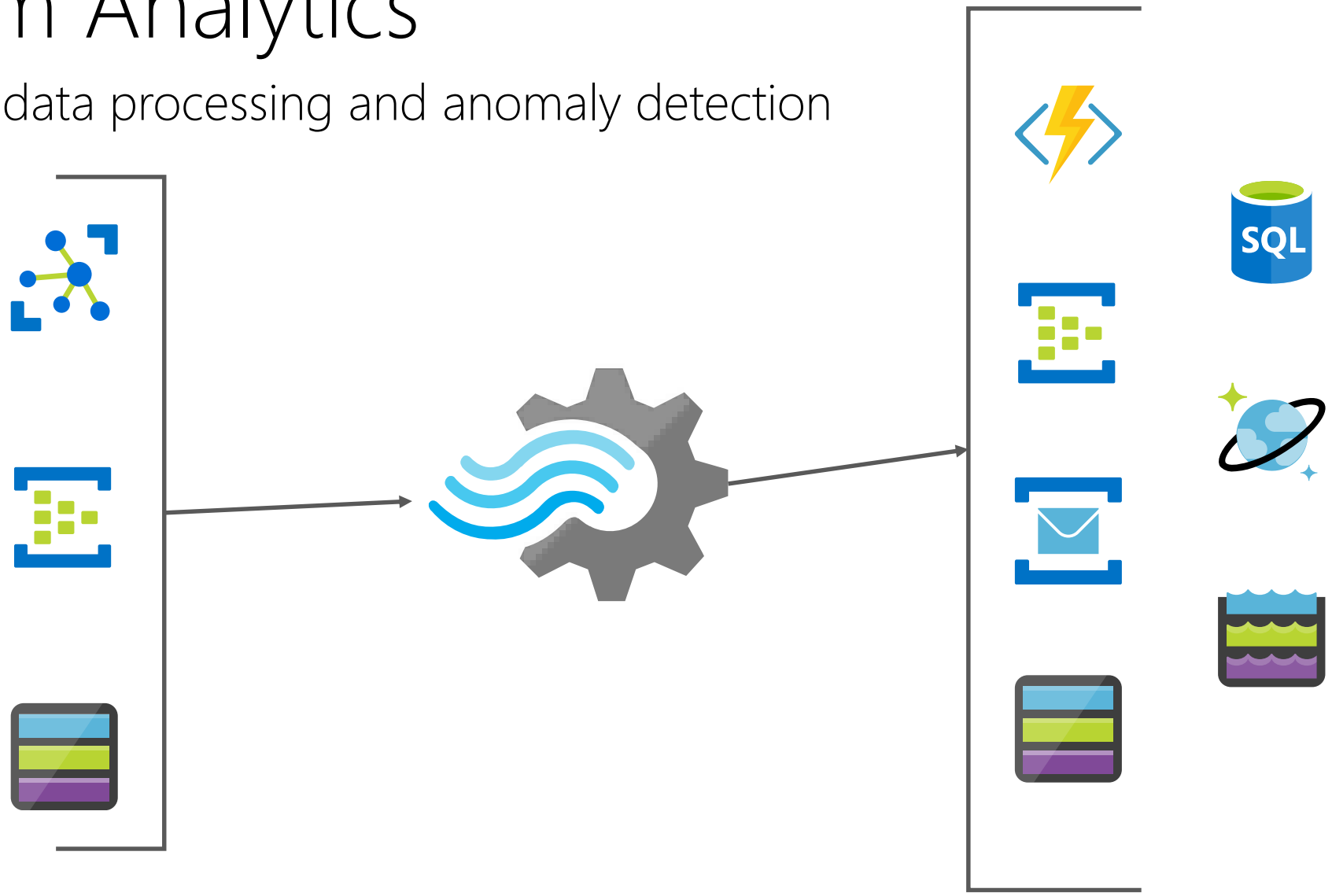


Image Source: https://docs.microsoft.com/en-us/azure/data-factory/concepts-integration-runtime

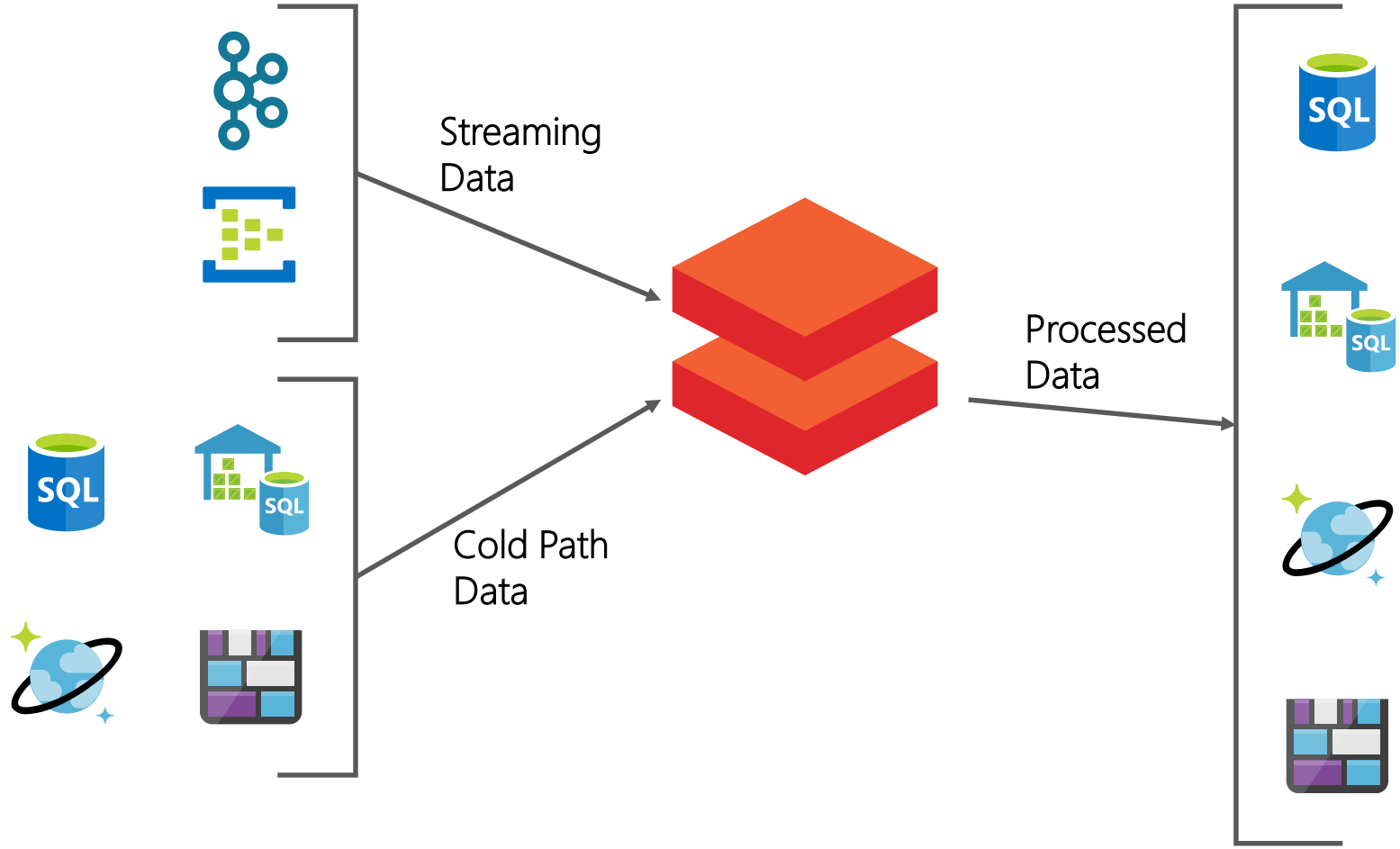
Stream Analytics

Real-time data processing and anomaly detection



Azure Databricks

Big Data compute in the Cloud with managed Spark Clusters



Cosmos DB

Change Feed processing – reactive programming model for unstructured data, low latency, globally distributed

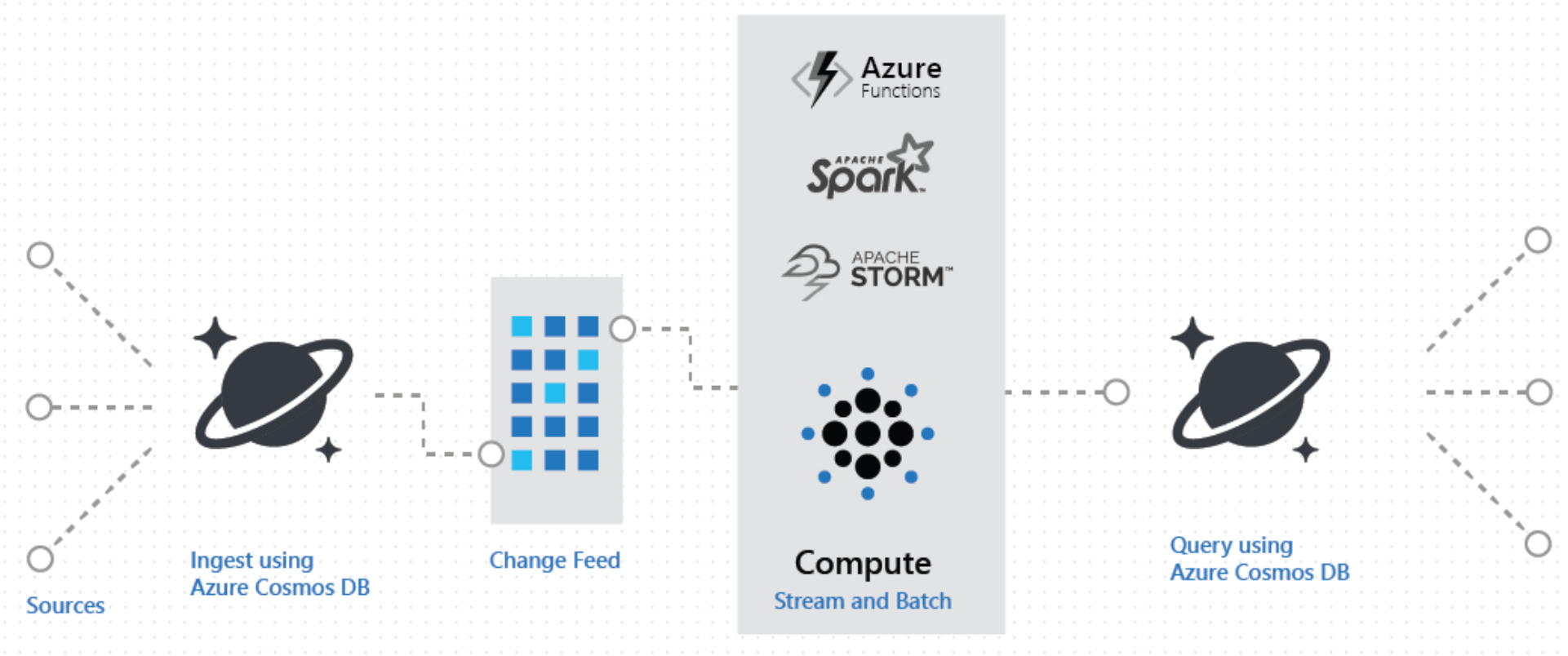


Image Source: https://docs.microsoft.com/en-us/azure/cosmos-db/change-feed

Where to use Azure Integration in IoT

- Standard messaging good practice
  - Asynchronous messaging
  - Load levelling
  - Streaming data processing
  - etc.
- M2M interaction
- Status updates
- Firmware updates
- Command and Control
- …and many more!

Photo by JJ Ying on Unsplash

Demo

Photo by Tim Bennett on Unsplash


YOU GET INTEGRATION
EVERYONE GETS INTEGRATION

Summary

- IoT pervades all aspects of the application stack
- IoT is as much about processing and movement of data as it is about sensors
- IoT is as much about taking action based on outcomes as it is about the processing and movement of data
- Integration is front and centre of it all
- Azure Integration Services enable a full end-to-end solution in IoT


You can still be an Integration Superhero!

Thanks for listening!

Stay in touch

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