

Data Ingestion with Azure Event Hubs

Data Science Dojo

Typical Event Processing



Applications



Cloud Gateways
(WebAPIs)



Scalable
Event Broker



External
Data Sources



Web/Thick
Client Dashboards



Devices



Field Gateways



Search and Query



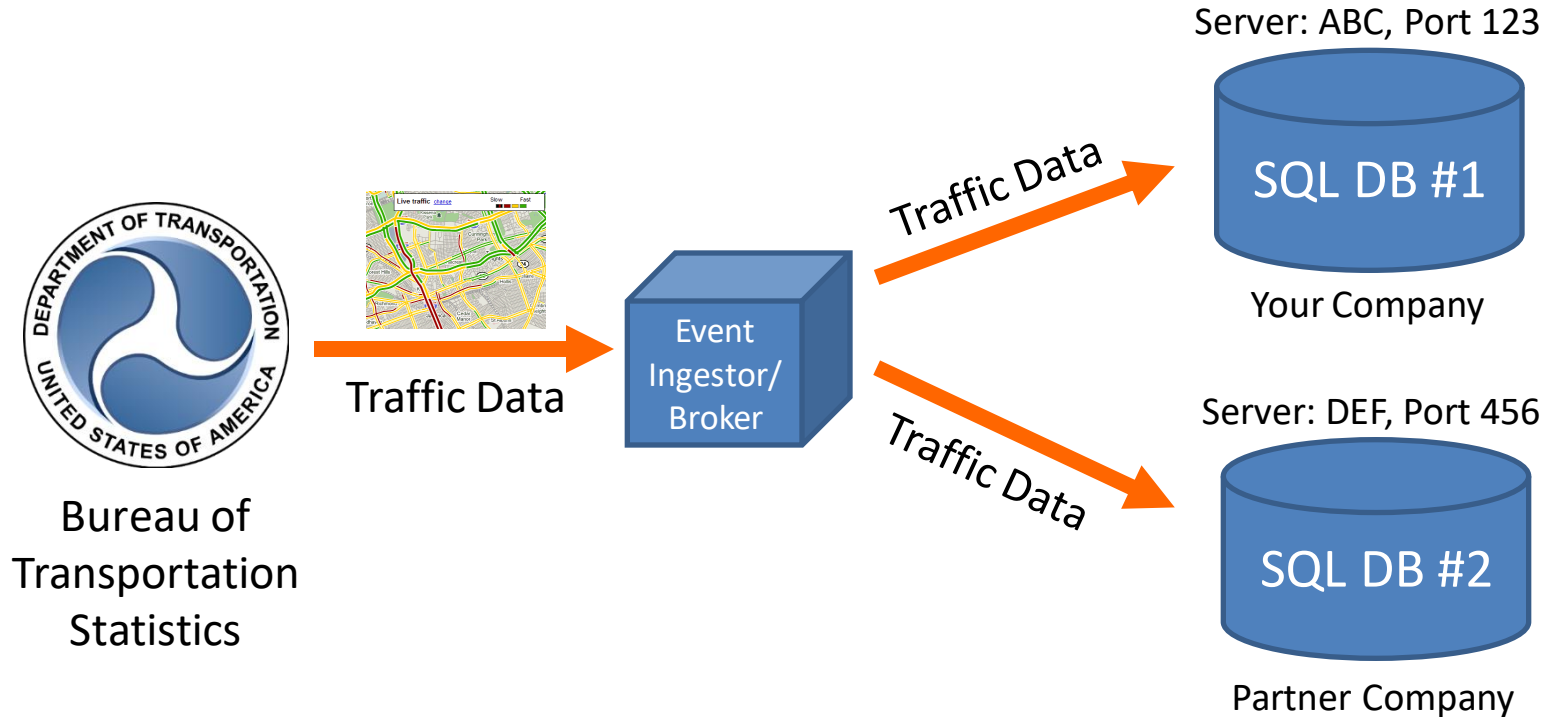
Data Analytics

The Post Office & Shipping Centers



- Tracks address changes
- Tries again tomorrow if send failed
- Holds packages in short term
 - Too many failed deliveries
 - Vacations
- Reduces complexity through specialization
- Optimized to send, receive, and temporarily house packages

Preventative Solution: Middleware



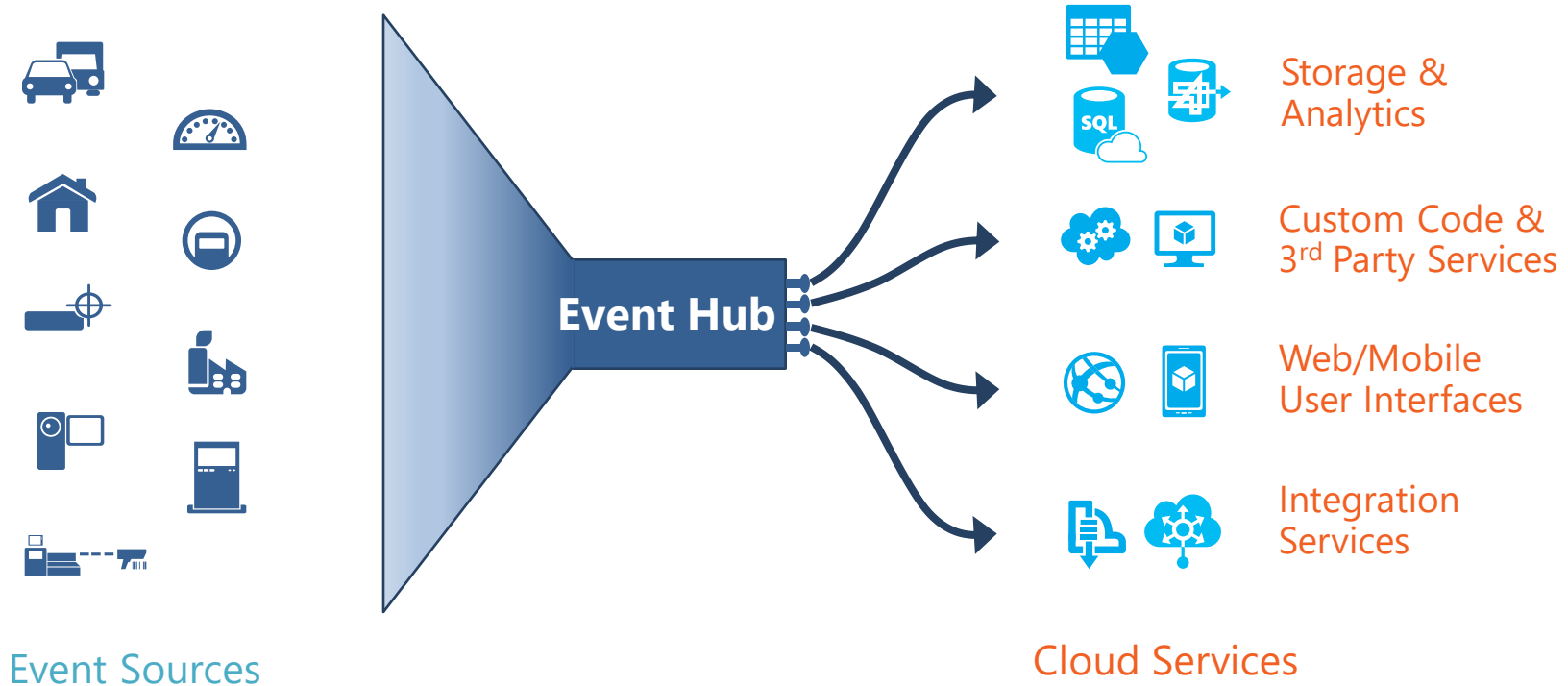
Popular Event Brokers



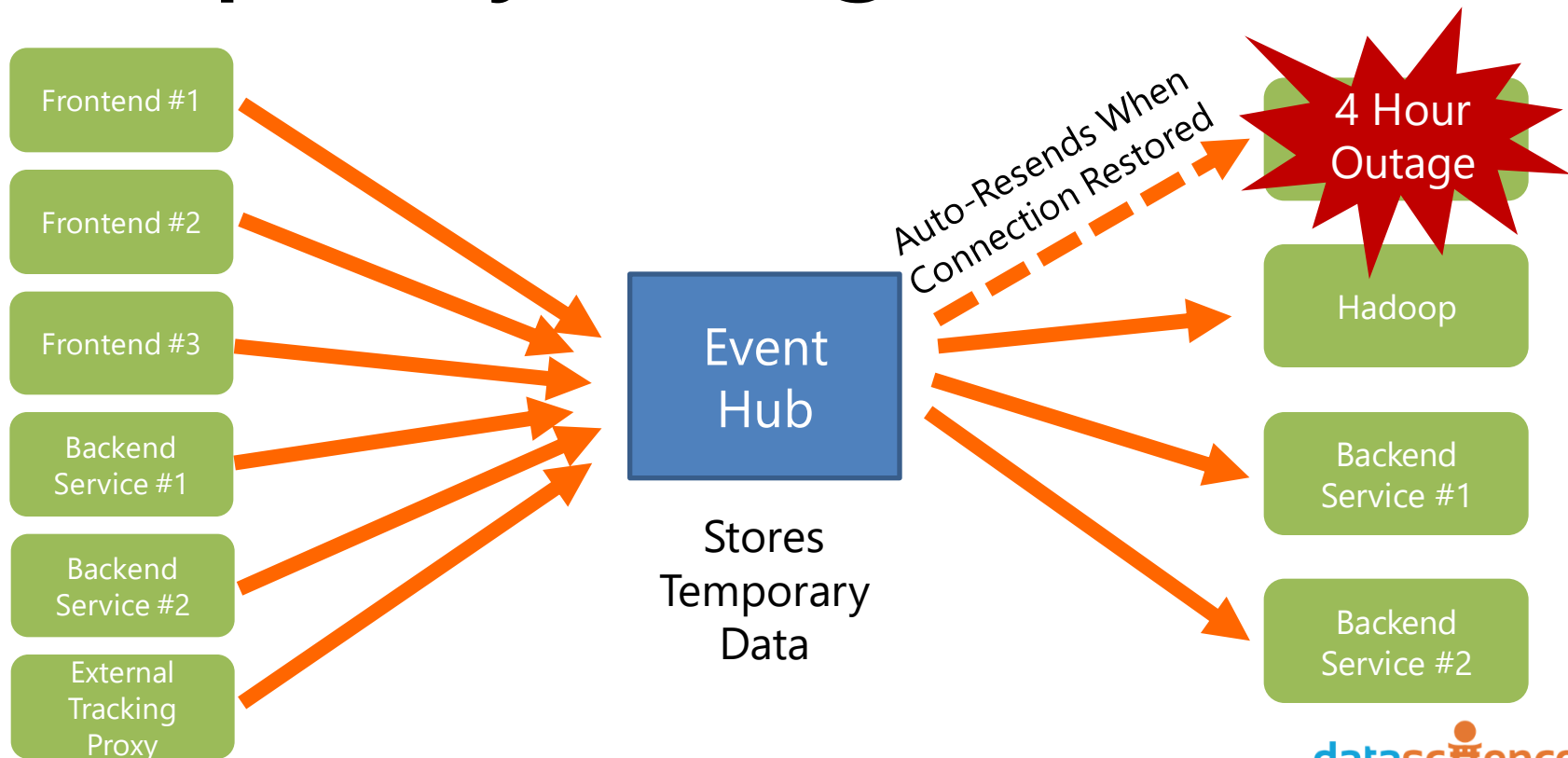
Azure Event
Hubs



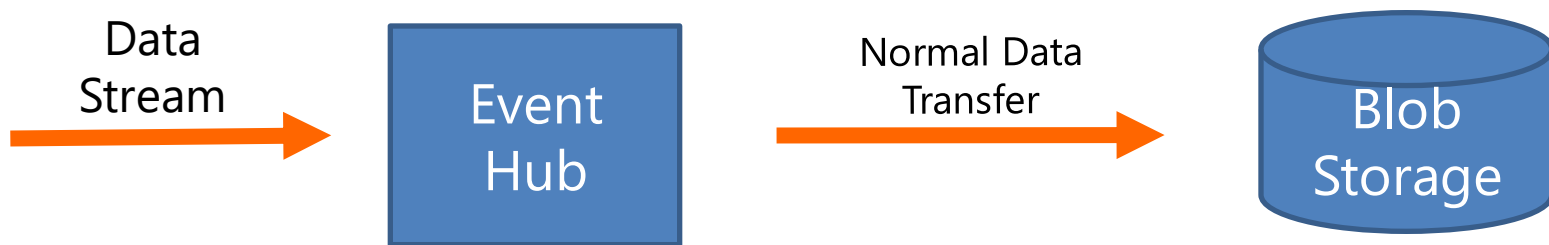
Event Hub for IoT: Big Data Ingestion



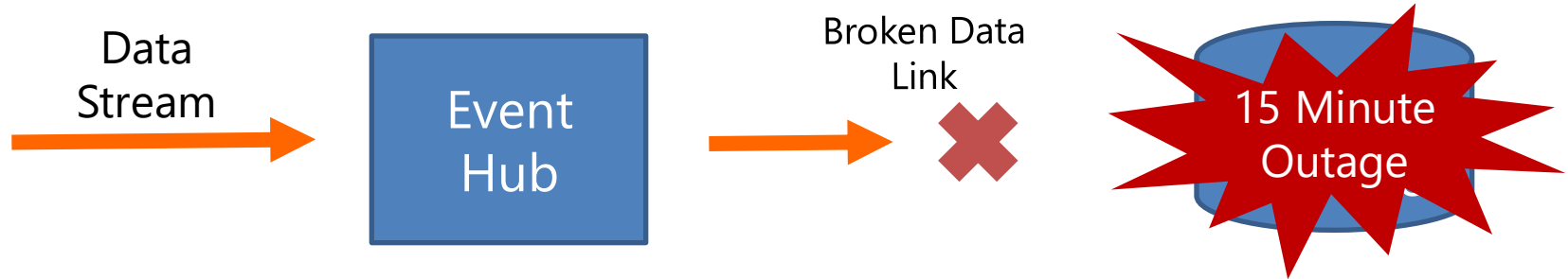
Temporary Storage



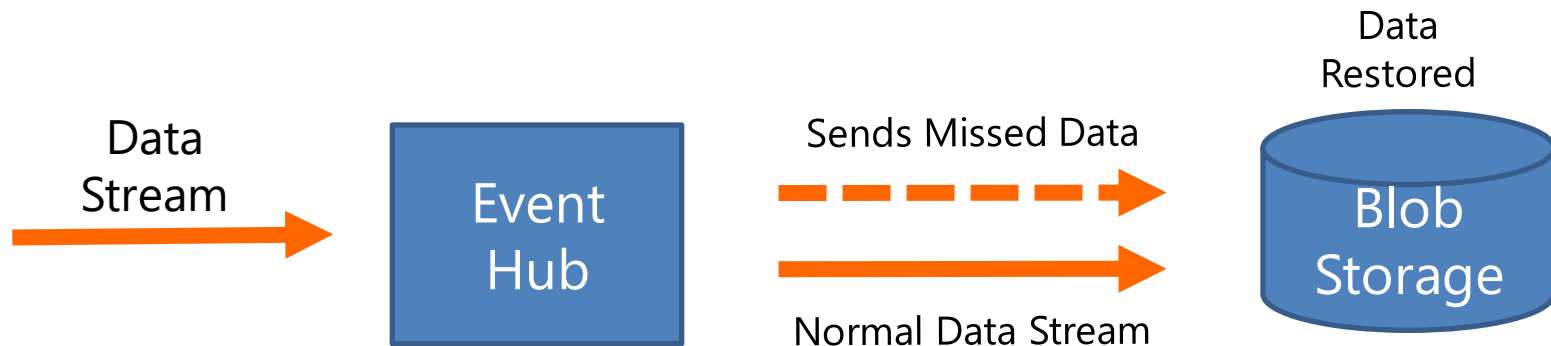
Demo: Normal Scenario



Demo: Output Downage



Demo: Output Restored

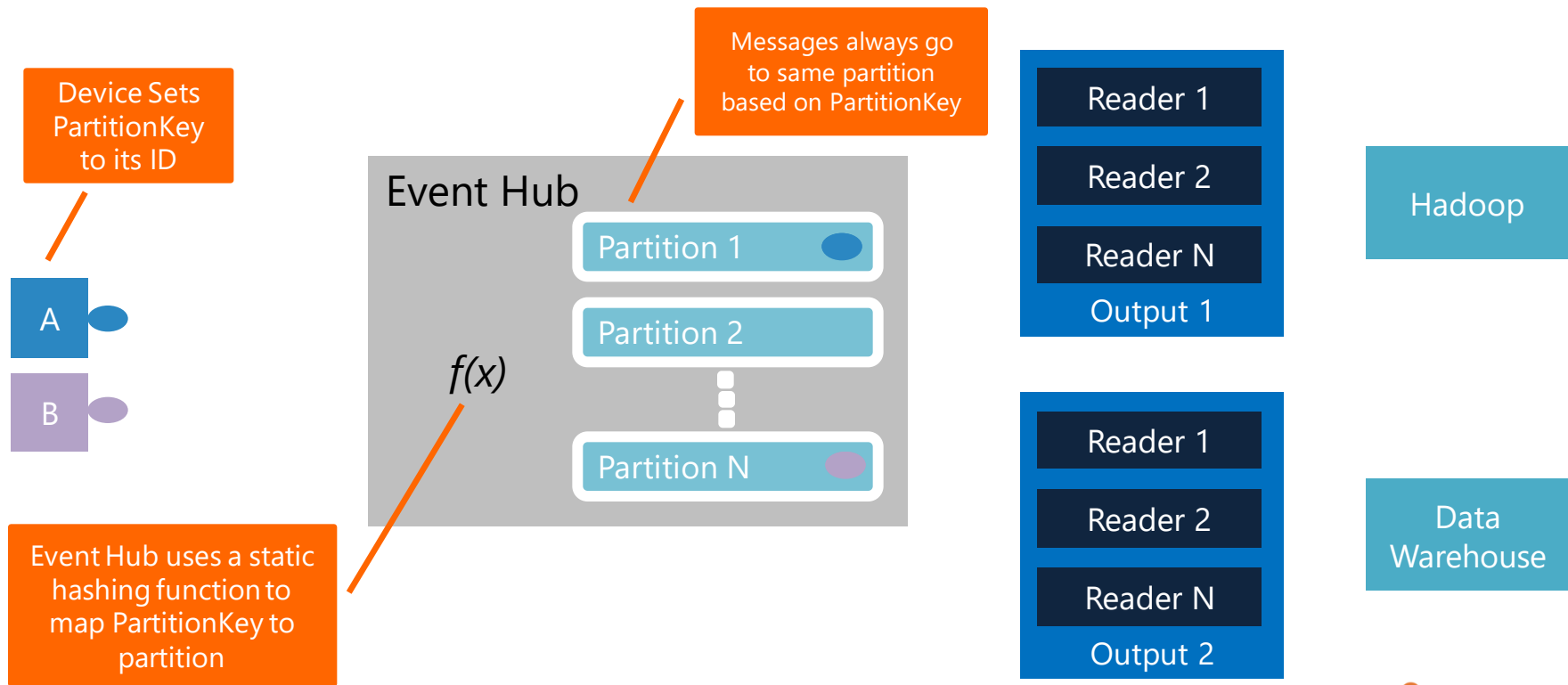


The Post Office



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Event Hub, Stream Management



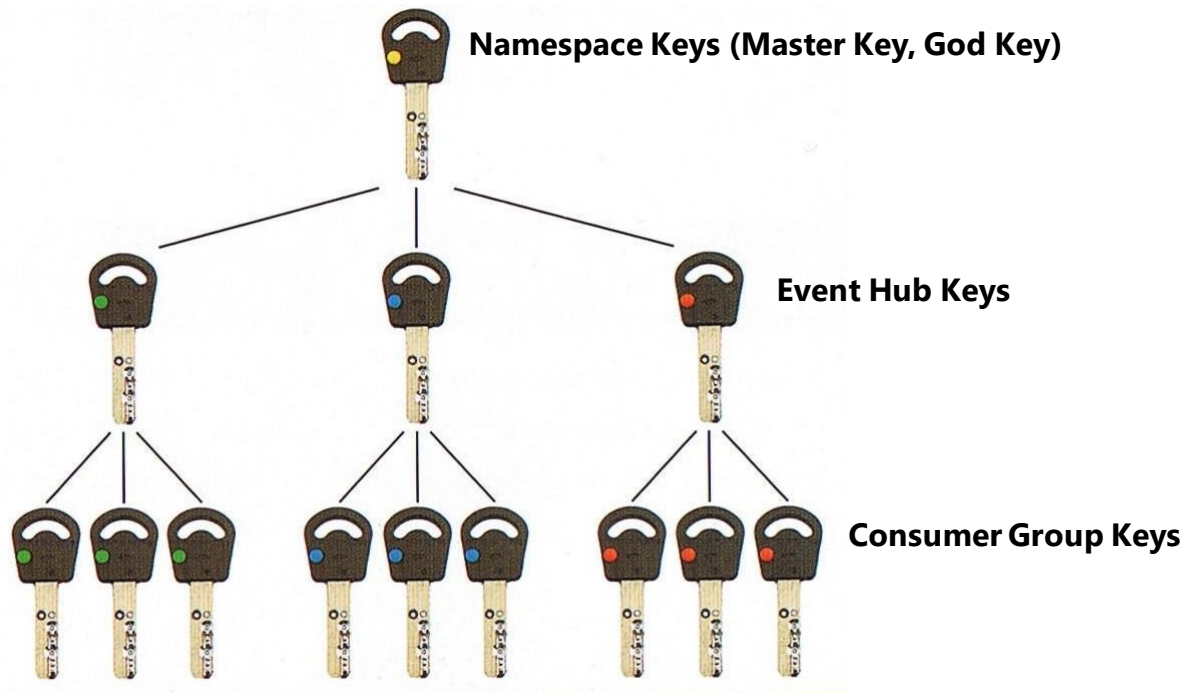
Service Bus Namespace

Service Bus Namespace

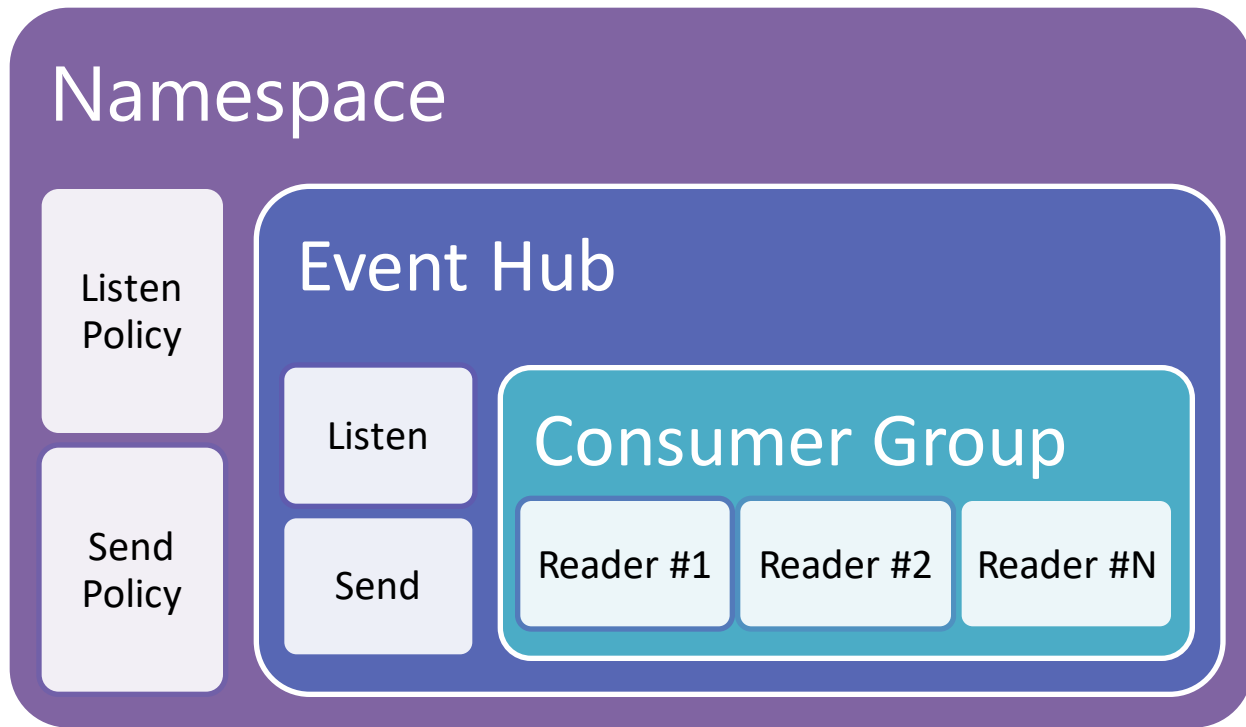
Event Hub 1

Event Hub 2

Access Rights, Policy, Keys



Access Rights



Access Rights



Hands-On Lab

Credit Card Transactions (swipes)



- Credit card transactions are usually done in batch as an end-of-the-day send.
- Stream process for insights now.
- US mainland transactions



Streaming to Event Hub



**Credit Card
Reader
(Synthetic)**



**Message Broker
(DataScienceDojo's
Webpage)**



**Data Ingestor
(Azure Event Hub)**

The Data

```
{  
  "swipe_date":"2015-05-22T20:16:27.122Z",  
  "transaction_id":3127484,  
  "card_type":"VISA",  
  "card_number":"4913419738164560",  
  "expiration_month":"02",  
  "expiration_year":"18",  
  "cvv_code":"520",  
  "user_id":"972288",  
  "user_gender":"male",  
  "user_first_name":"Alexander",  
  "user_last_name":"Hamilton",  
  "merchant":"McDonald's",  
  "transaction_amount":13.64,  
  "balance":336.48,  
  "merchant_fee":.5,  
  "swipe_city":"New York",  
  "swipe_state":"New York",  
  "swip_city_state":"New York, NY",  
  "InstanceNo":1  
}
```


The Streamer


- <http://demos.datasciencedojo.com/app/credit-card-streamer/>


Credit Card Streamer

This app will simulate the kind of data streams that banks would encounter, credit card swipe data. The app will generate synthetic data from a credit card transaction (swipe) and pushes it into a given Azure Event Hub as a JSON. The application logic for this app is written entirely in JavaScript so the speed and interval of the transactions is dependent on the processing power of the user device.

Event Hub Credentials

Event Hub Name (Need help? PDF Guide) 

Service Bus Namespace (Need help? PDF Guide) 

Shared Access Policy Name (Need help? PDF Guide) 

Output Preview

Display Format (Data is still sent as a JSON):

```
Successfully loaded database. Ready to simulate data.
```

Inside the Event Hub



**Credit Card
Reader
(Synthetic)**

Swipes
→

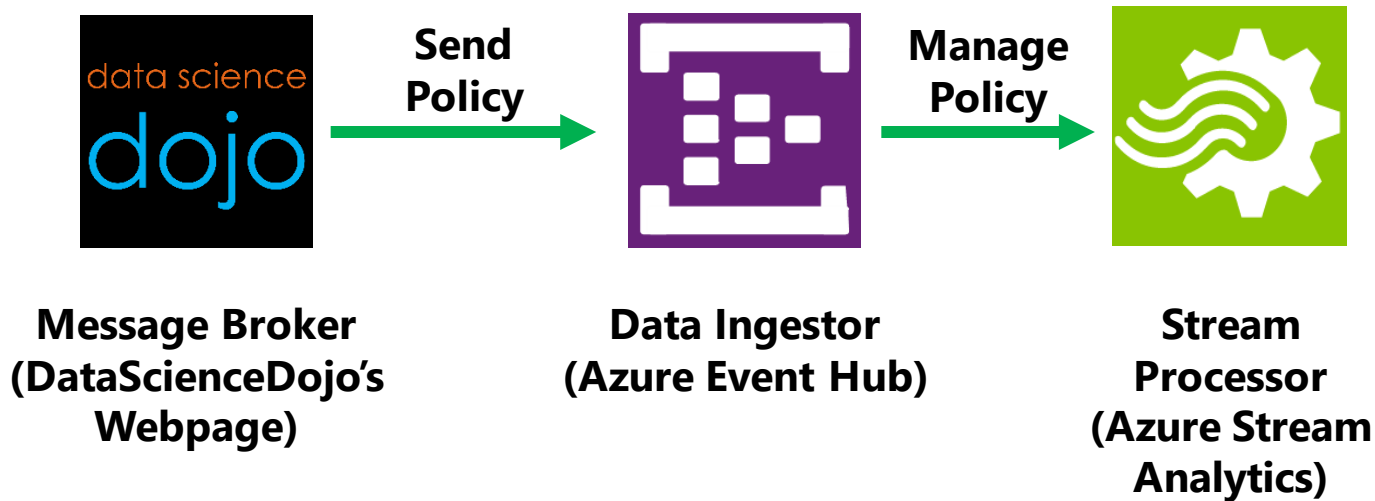


**Message Broker
(DataScienceDojo's
Webpage)**

→



Setting Policies



QUESTIONS