

CLOUDERA

Let's Monitor The Conditions at the Conference

Tim Spann
Principal Developer Advocate

Tuesday October 10, 2023
11:20 AM - 12:00 PM
Room 102

COMMUNITY
THE ASF CONFERENCE
CODE

At home, I monitor the temperature, humidity, gas levels, ozone, air quality, and other features around my desk. Let's bring this to the different spots around the conference including lunch tables, vendor booths, hotel rooms, and more. I need to know about these readings now, not when I get back home from the conference. We need to get these sensor readings immediately in case we need to turn on a fan or move to another area. We will also see if my talk produces a lot of hot air!?!?? My setup is pretty simple, a raspberry pi, a breakout garden sensor mount, and as many sensors as I can carry. All code and parameters will be available ASF-licensed in github. The software stack is Python and Java, MQTT, HTML, JQuery, and Apache **NiFi**, Apache **Kafka** and Apache **Flink**.

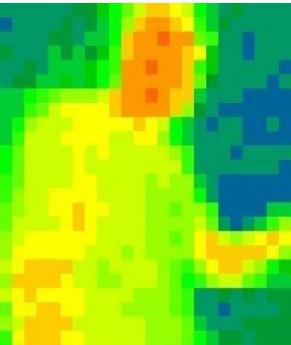
Top IoT Experts

**Tim Spann**

Principal Developer Advocate,
Cloudera

<https://github.com/tspannhw/SpeakerProfile>
Tim Spann is a Principal Developer Advocate in Data In Motion for Cloudera. He works with Apache NiFi, Apache Pulsar, Apache...

FLaNK Stack



Tim Spann

@PaasDev // Blog: www.datainmotion.dev

Principal Developer Advocate.

Princeton Future of Data Meetup.

ex-Pivotal, ex-Hortonworks, ex-StreamNative, ex-PwC

<https://medium.com/@tspann>

<https://github.com/tspannhw>

Apache NiFi x Apache Kafka x Apache Flink





Slides, Code, Articles and More....



Future of Data - New York + Princeton + Virtual



<https://www.meetup.com/futureofdata-princeton/>

<https://www.meetup.com/futureofdata-newyork/>

AN OPEN SOURCE COMMUNITY

From Big Data to AI to Streaming to Containers to Cloud
to Analytics to Cloud Storage to Fast Data to Machine
Learning to Microservices to ...

@PaasDev

FLaNK Stack Weekly



<https://bit.ly/32dAJft>



This week in Apache NiFi, Apache Flink, Apache Kafka, Apache Spark, Apache Iceberg, Python, Java, AI, ML, LLM and Open Source friends.

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193

914

555

166

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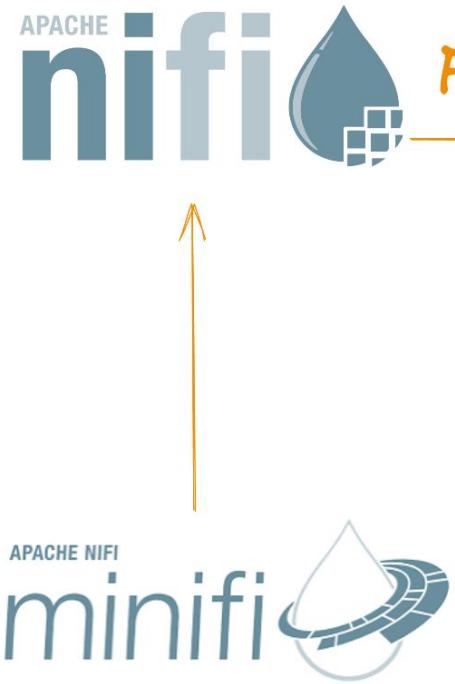
21:02:42 EDT



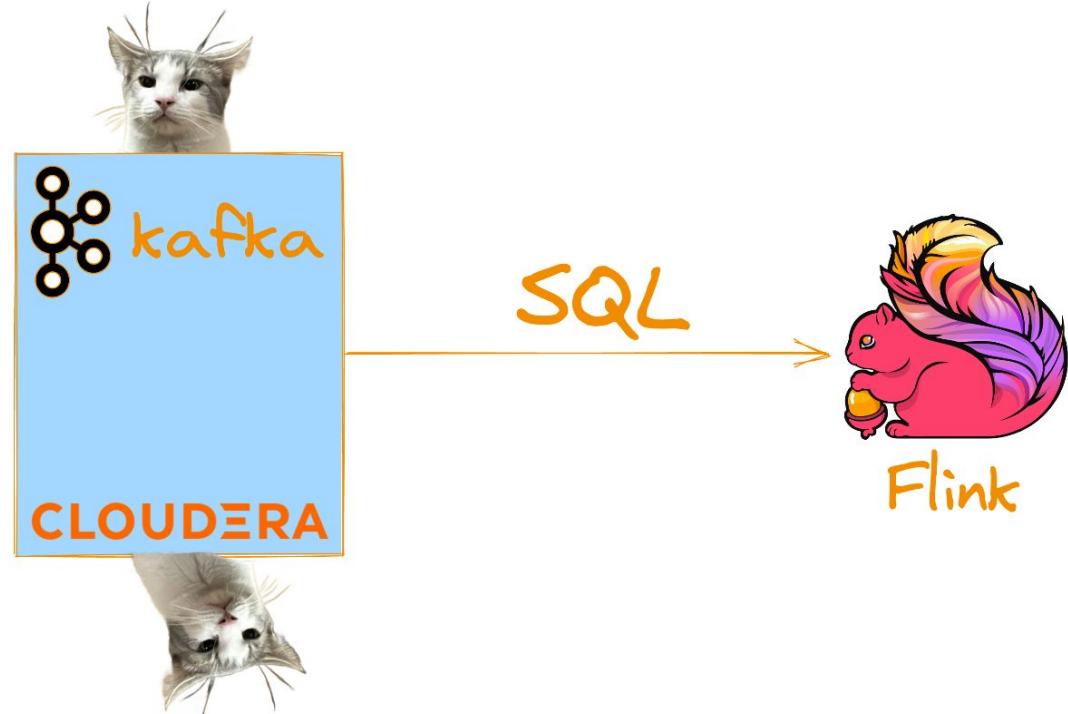
My Talk List

Utilizing Real-Time Transit Data for Travel Optimization

Looking at the New Features of Apache NiFi



Produce



<https://github.com/tspannhw/FLaNK-Edge>



APACHE NiFi - MiNiFi Agents



NIFI For Ants

Apache NiFi - MiNiFi Agent

Edge device data collection and processing with easy to use central command and control



A lightweight edge agent that implements the core features of Apache NiFi, focusing on data collection and processing at the edge

- Central Command and Control (C2)
- Design and deploy to millions of agents
- Edge Applications lifecycle management
- Multitenancy with Agent classes
- Native integration with other CDF services

- Small footprint agent with MiNiFi
- Java and C++ agents
- Rich edge processors (edge collection & processing)
- End to end lineage and security
- Kubernetes support

IS THIS ENOUGH DATA?



CLOUDERA

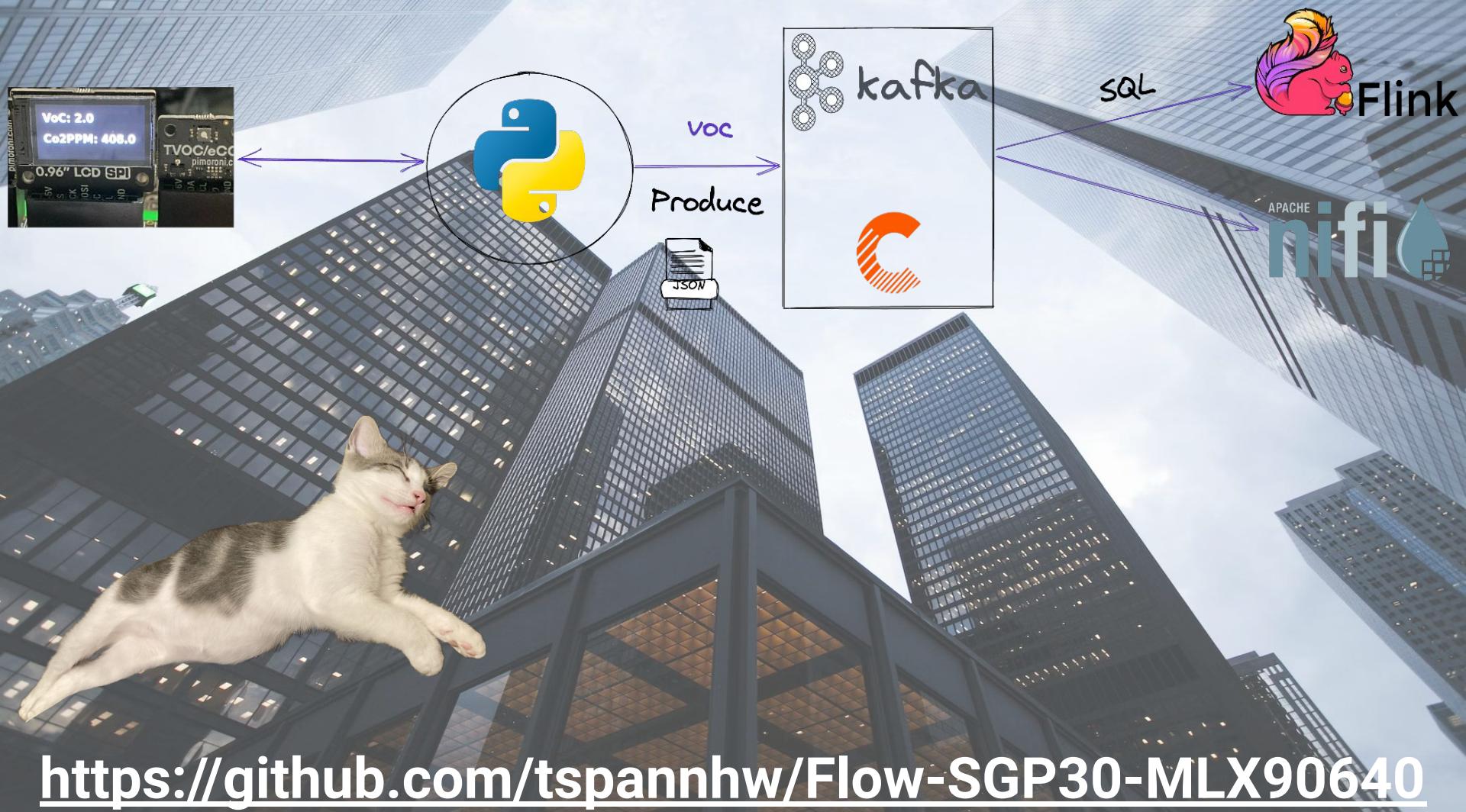


gfip.com

LOOK AT METER



MONITOR
WITH
STREAMING APPS



Hardware List

- Pimoroni Breakout Garden
- Raspberry Pi 400
- MLX90640 Thermal Camera Standard
- SGP30 Air Quality Sensor Breakout (TVOC/eCO2)



Actions

- MiNiFi: Call Python script and send to Kafka and NiFi
- Consume Kafka Streams in Apache Flink SQL & Apache NiFi
- Real-Time Analytics
- Produce HTML Page Listing all the images as uploaded
- NiFi extensions: Send to slack, websockets, html page, email, ...



DEMO





Collect: Bring Together

Aggregate all data from sensors, drones, logs, geo-location devices, images from cameras, results from running predictions on pre-trained models.



Conduct: Mediate the Data Flow

Mediate point-to-point and bi-directional data flows, distribute, delivering data reliably to Apache Iceberg, S3, Apache Kudu, Apache HBase, JDBC, Slack and Email.



Curate: Gain Insights

Orchestrate, parse, merge, aggregate, filter, join, transform, fork, query, sort, dissect, store, enrich with weather, location, sentiment analysis, image analysis, object detection, image recognition and more with Apache Tika, GenAI REST, Apache OpenNLP and Machine Learning.

