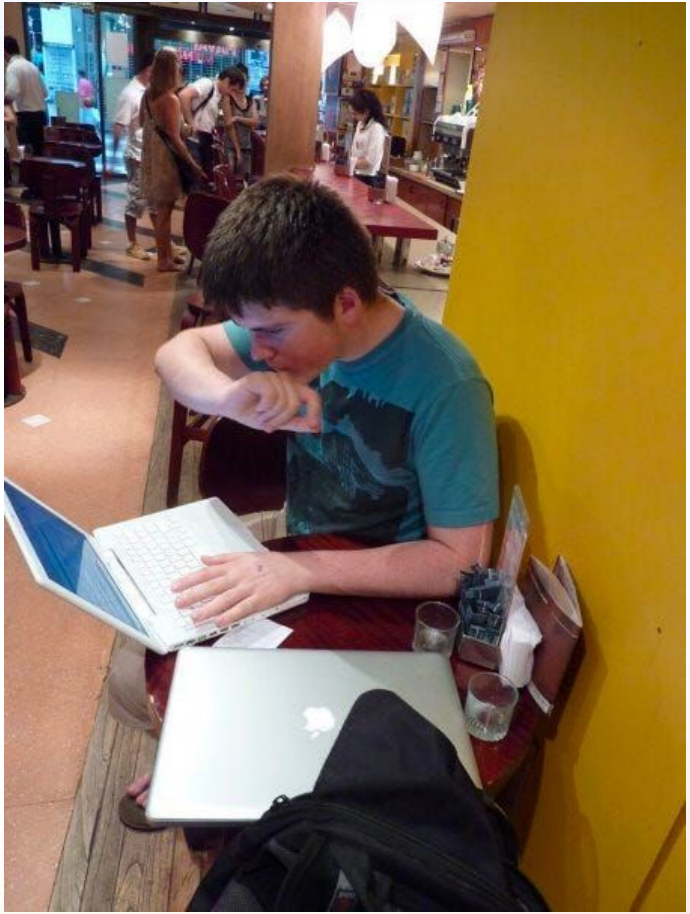
AIRFLOW SUMMIT

Do you trust Airflow with your money? We do*!

3.0

Sabrina Liu
Senior Software Engineer, Stripe

In 2010, Stripe was a hole in the wall



John Collison, cofounder of Stripe, in 2010

stripe

Global scale

The backbone for global commerce

Stripe makes moving money as easy and programmable as moving data. Our teams are based in offices around the world and we process hundreds of billions of dollars each year for ambitious businesses of all sizes.

500M+

API requests per day, peaking at 13,000 requests a second.

99.999%

historical uptime for Stripe services.

90%

of U.S. adults have bought from businesses using Stripe.

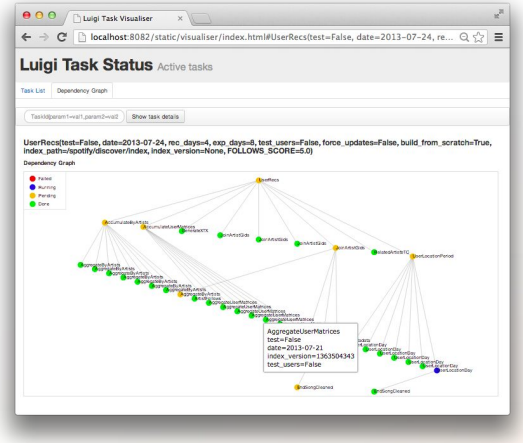
135+

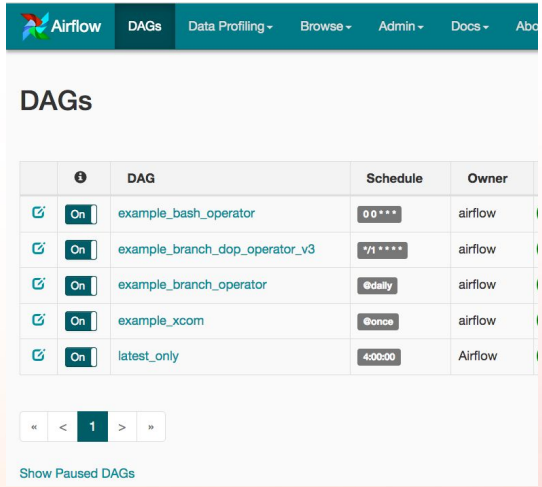
currencies and payment methods supported.

Mid-2010s

2017 - present

What are data pipelines??





stripe

Airflow at Stripe in 2025

15,000
unique Task classes

180,000
unique Tasks instantiated

10 million
daily task instance executions

stripe

2 Airflow clusters

Why Airflow 1, 2, or 3 out of the box don’t solve our problems

We have an **UberDAG** (not you, Dara)

I want to reuse code across the **monorepo** like a good engineer

Just run my workload

Let my task live for **3 days**

What we've built

Airflow but easier

Low-code + no code orchestration on top of Airflow

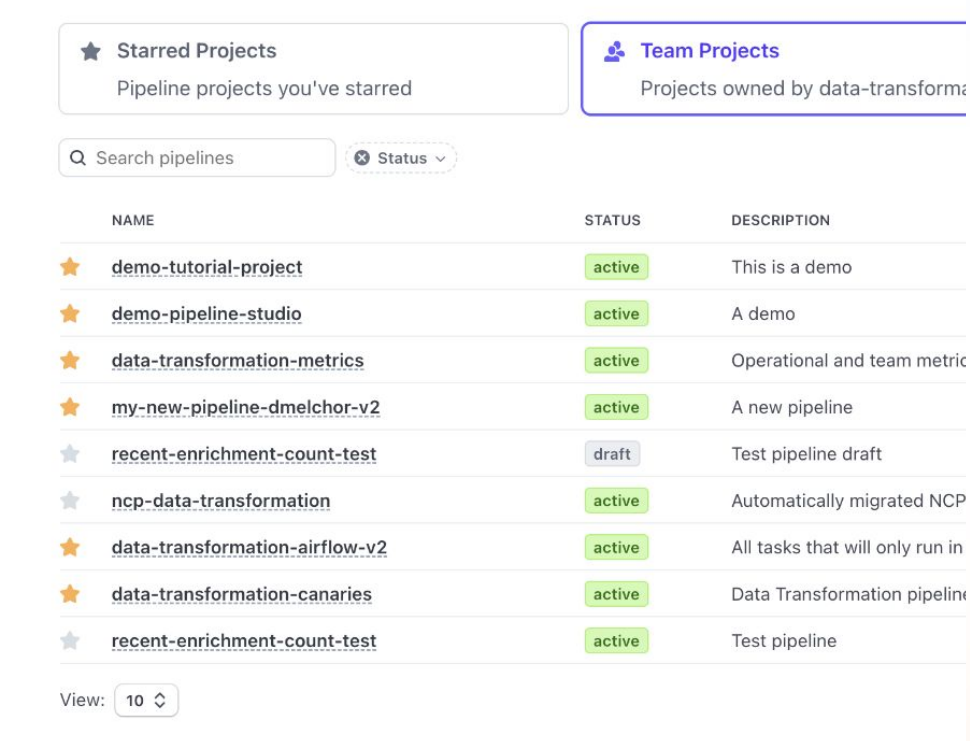
Local testing

User Scoped Mode (USM)

Multitenancy

Project-level isolation and reliability on a single Airflow cluster

Airflow but easier



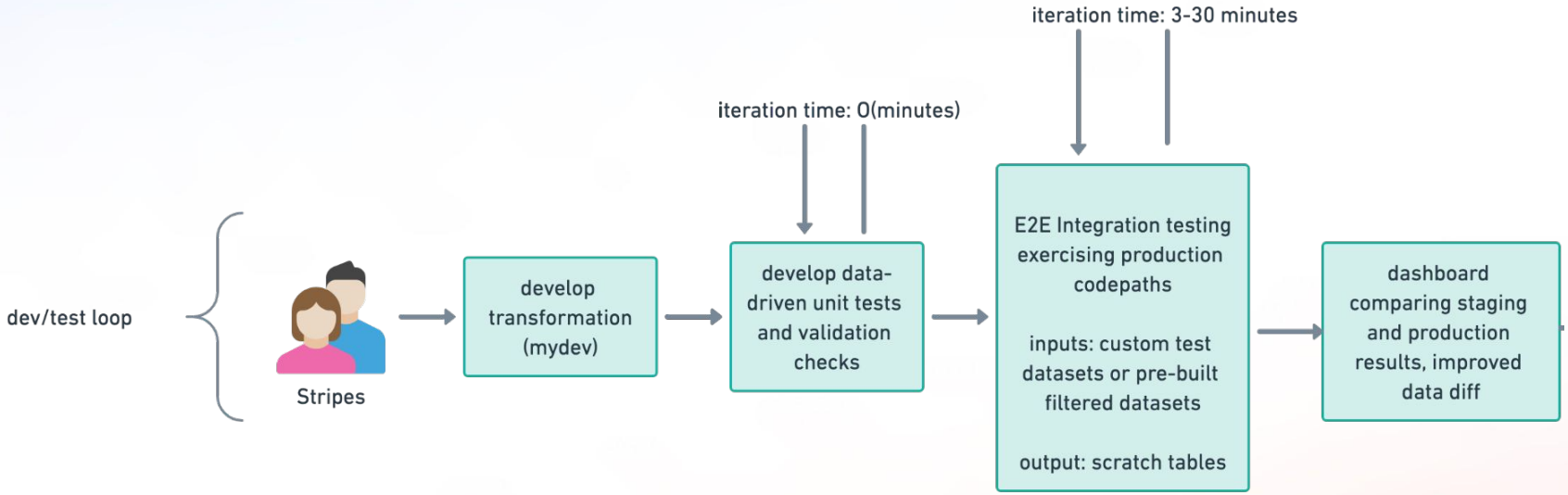
Simple Pipelines:

yaml-based task authoring using SparkSQL

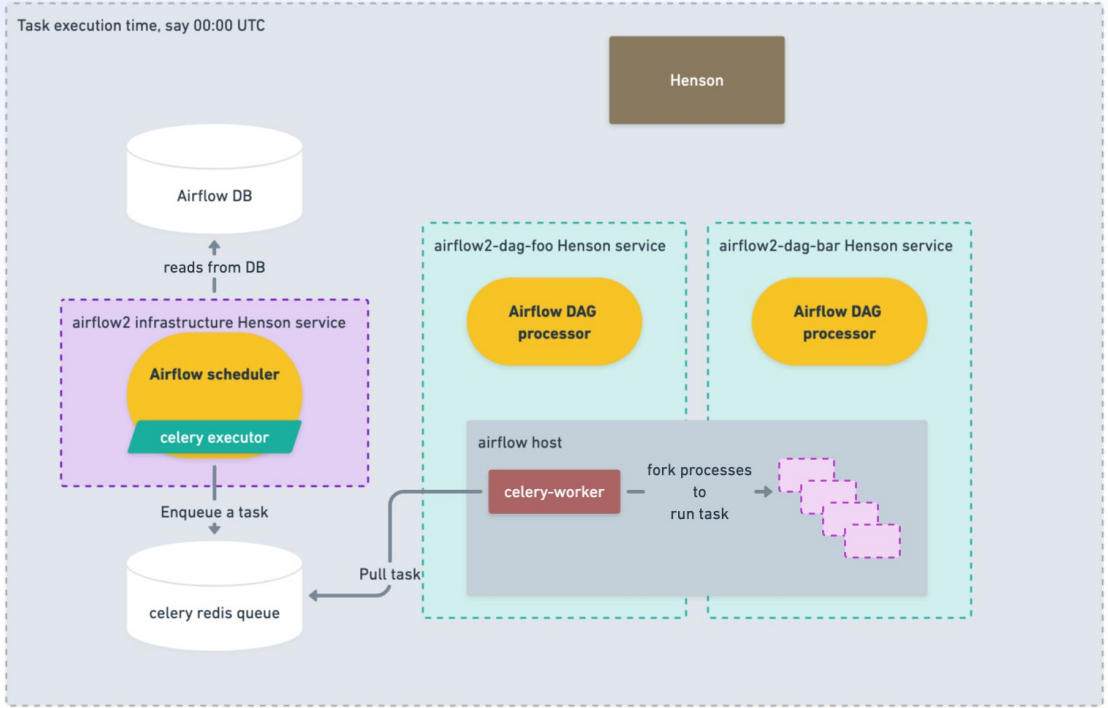
Pipeline Studio:

no code task authoring using SQL

User Scope Mode



Key: production inputs, non-production outputs



Improvements

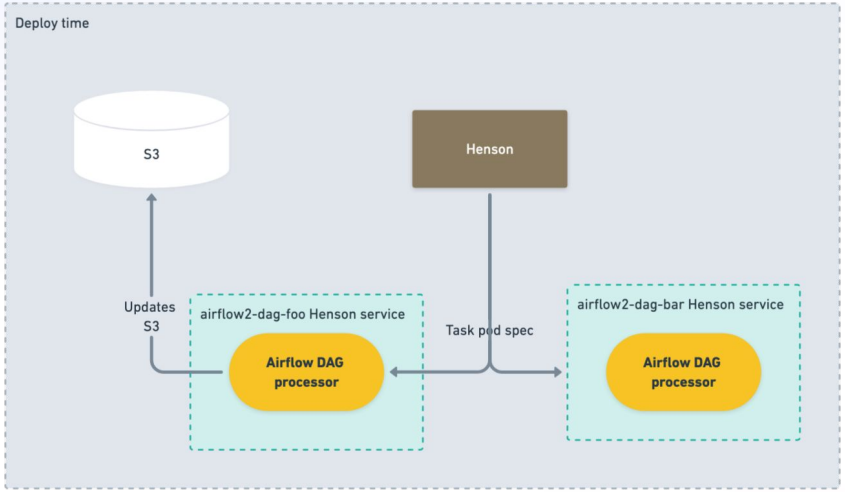
- 1 project : 1 service : 1 dag processor : 1 owning team

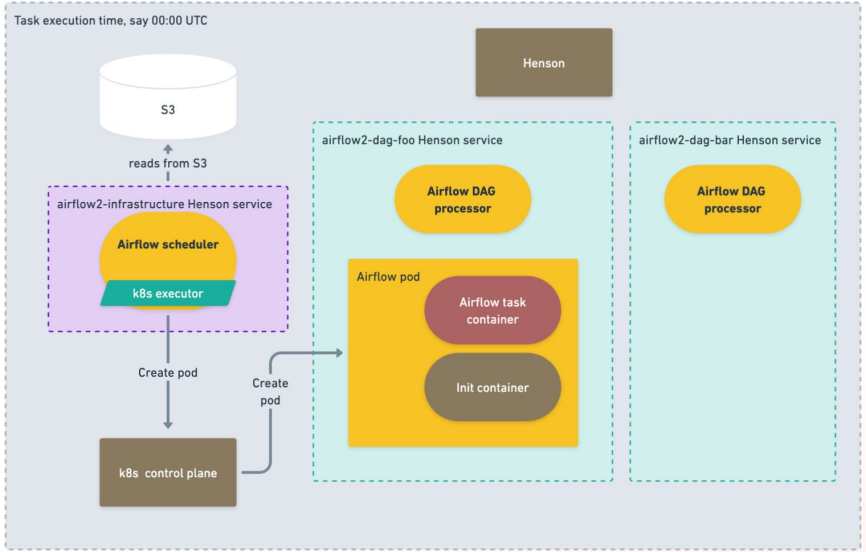
Weaknesses

- Hard to scale deployments
- Manual Celery shard management
- Shared workload identity

Step 1 to multitenancy with EC2 and Celery

Multitenancy with KubernetesExecutor





Independent execution and configuration

stripe

Customizations with the KubernetesExecutor

- **[scalability]** Multi-shard support
  - One executor per Kubernetes shard
  - We add a `cluster_context` attribute to the `kube_client`
  - Dedicated Kubernetes shard for Airflow workloads
- **[compliance]** SOX controls for workloads that touch financial data
  - Separate Kubernetes namespaces
  - Lifecycle management for long-running, stateful workloads
- **[efficiency]** Semi-managed compute
  - API for requesting CPU and memory
  - Automatic bin-packing for short-lived tasks

… and much more!

… but we haven’t won yet!

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