FLIGHTSTATS

FlightStats Data and Platform

FLIGHTSTATS

Who is FlightStats?

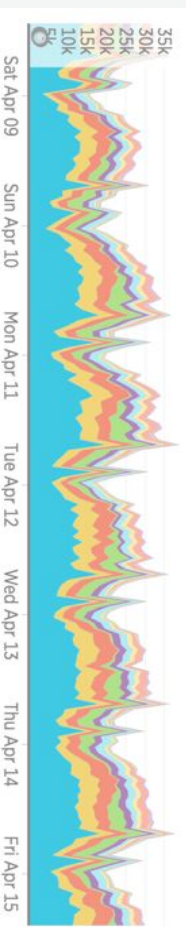*FlightStats is the leading provider of global real-time flight status data.*
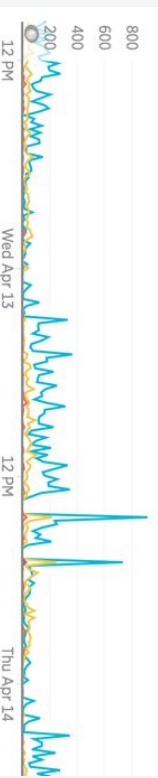
- Over 500 sources of data
- Daily ingress
  - ~15M flight events
  - ~260M aircraft positions
  - ~1M PNRs
- Daily egress
  - ~2M FlightStats.com requests
  - ~1M mobile app requests
  - ~15M Flex API requests
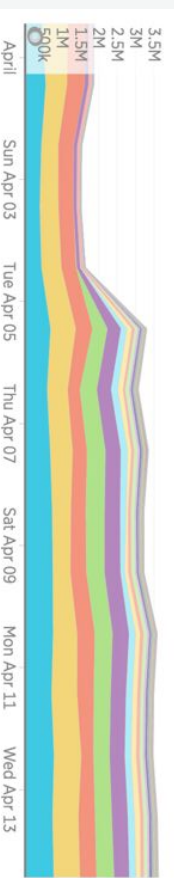 - ~1.5M flight/trip notifications

Direct Data Feed Volume By Hour
Since 1 week ago
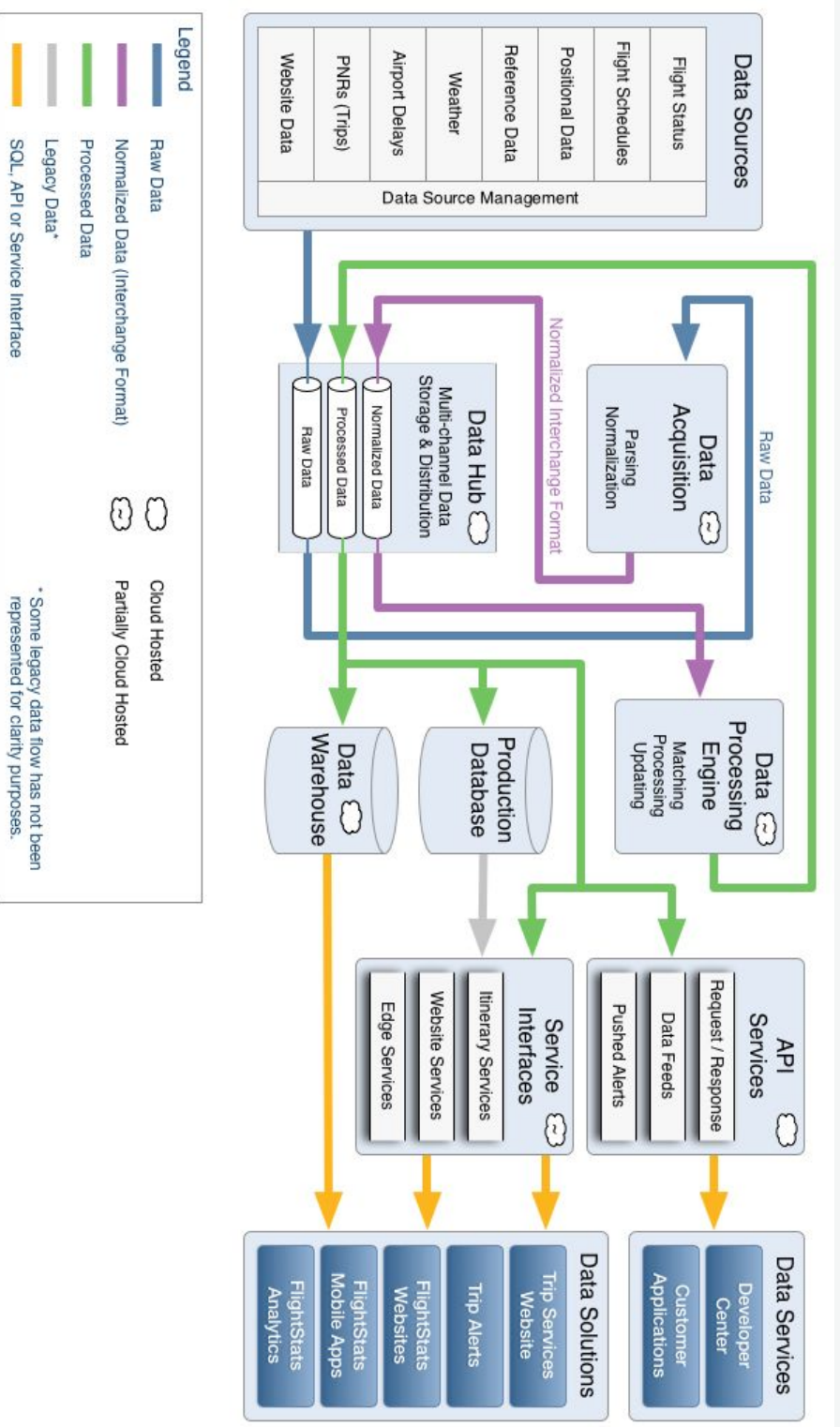
New Alerts Delivered (TAD)
Since 3 days ago

Flight Status API Requests
Since 15 days ago

Data Sources

- Flight Status
- Flight Schedules
- Positional Data
- Reference Data
- Weather
- Airport Delays
- PNRs (Trips)
- Website Data

Data Source Management

Legend

Raw Data
Normalized Data (Interchange Format)
Processed Data
Legacy Data*
SQL, API or Service Interface

Cloud Hosted

Partially Cloud Hosted

* Some legacy data flow has not been represented for clarity purposes.

Data Acquisition

Parsing
Normalization

Raw Data

Normalized Interchange Format

Data Hub

Multi-channel Data
Storage & Distribution

- Raw Data
- Processed Data
- Normalized Data

Data Processing Engine

Matching
Processing
Updating

Data Warehouse

Production Database

Service Interfaces

- Itinerary Services
- Website Services
- Edge Services

API Services

- Request / Response
- Data Feeds
- Pushed Alerts

Data Solutions

- FlightStats Analytics
- FlightStats Mobile Apps
- FlightStats Websites
- Trip Alerts
- Trip Services Website

Data Services

- Customer Applications
- Developer Center

Object storage based, scalable, highly available, multi-channel data queuing and eventing system.

Open Source: https://github.com/flightstats/hub
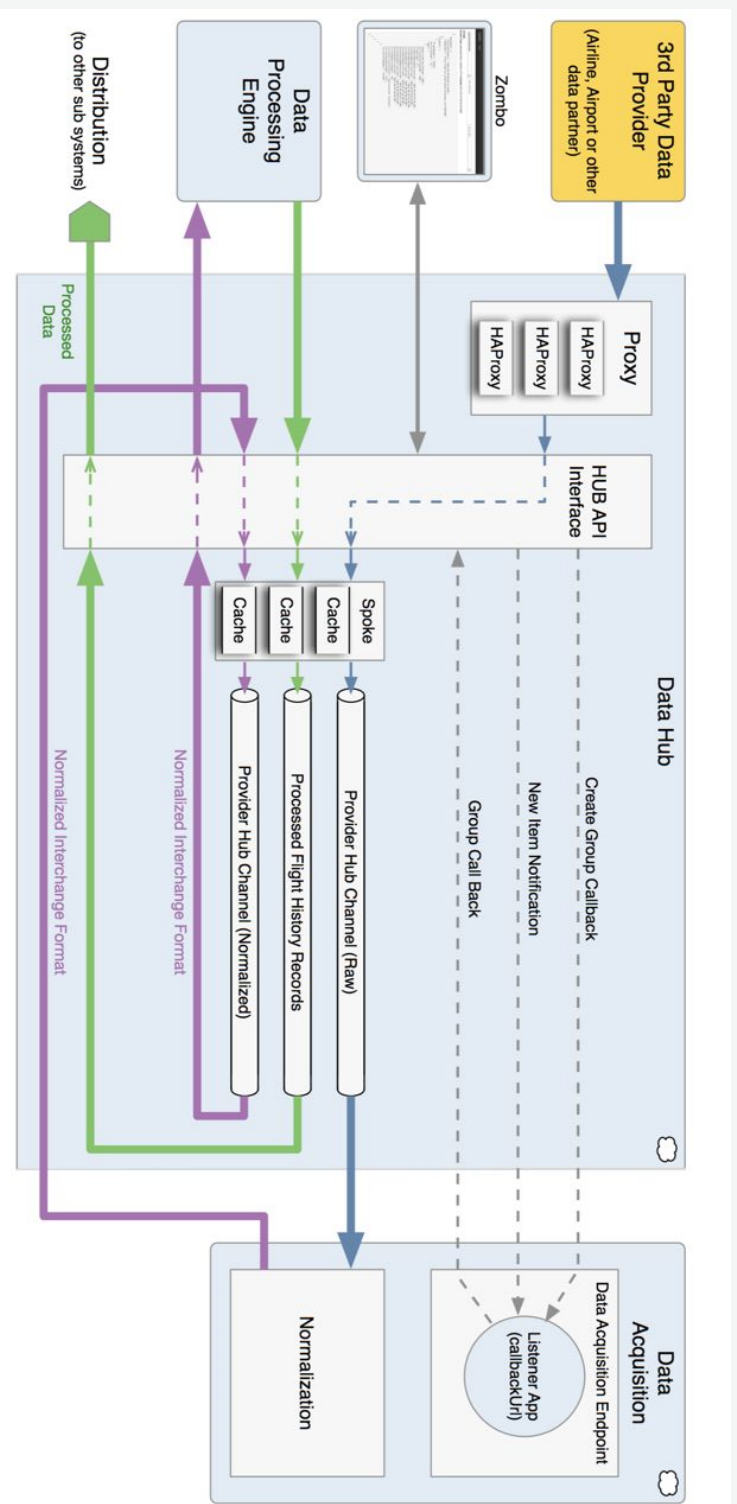
Gate Departure

Runway
Departure

In-flight
Positional
Tracking

Gate Arrival

Runway Arrival

7

Special Incidents

Synthetic Positions

Delay Prediction

FLIGHTSTATS

Airport SFO ▾ Date 2016-04-15 < Hour > 00:00

Flight	Route	P24	P12	P8	P4	P2	PCurrent	Current Status
OO 5449	SFO -> BOI			Ontime	Ontime	Ontime	Ontime	Arrived-On time
UA 768	SFO -> BOS		Ontime	Ontime	Ontime	Ontime	Delayed	Departed-Delayed
OO 5920	SFO -> BUR	Ontime	Ontime	Ontime	Ontime	Ontime	Ontime	Arrived-On time
UA 1679	SFO -> CUN		Ontime	Ontime	Ontime	Ontime	Ontime	Departed-On time
VX 1	SFO -> DCA			Ontime	Ontime	Ontime	Ontime	Departed-On time
UA 2028	SFO -> DEN	Ontime	Ontime	Ontime	Ontime	Ontime	Ontime	Arrived-On time
VX 860	SFO -> DEN	Ontime	Ontime	Ontime	Ontime	Ontime	Ontime	Arrived-On time
OO 5567	SFO -> DFW	Ontime	Ontime	Ontime	Ontime	Ontime	Ontime	Departed-On time
AA 36	SFO -> DFW		Ontime	Ontime	Ontime	Ontime	Ontime	Departed-On time
OO 5632	SFO -> EUG		Ontime	Ontime	Ontime	Ontime	Ontime	Arrived-On time
VX 174	SFO -> EWR		Ontime	Ontime	Ontime	Ontime	Ontime	Departed-Delayed
UA 233	SFO -> EWR		Ontime	Ontime	Ontime	Ontime	Ontime	Departed-Delayed
VX 340	SFO -> FLL	Ontime	Ontime	Ontime	Ontime	Ontime	Ontime	Departed-Delayed
VX 51	SFO -> HNL		Ontime	Ontime	Ontime	Ontime	Ontime	Departed-On time
HA 11	SFO -> HNL			Ontime	Ontime	Ontime	Ontime	Departed-On time
UA 2146	SFO -> IAH			Ontime	Ontime	Ontime	Ontime	Departed-On time
DL 444	SFO -> JFK		Ontime	Ontime	Ontime	Ontime	Ontime	Departed-On time
AA 164	SFO -> JFK			Ontime	Ontime	Disrupted	Disrupted	Scheduled-Disrupted

Flight Notifications

FLIGHTSTATS — 8142 Active Flights — Global View — Toggle Interactive Mode

GateGuru

Continental Airlines #4433
Your flight is scheduled to depart in 30 minutes. Boarding may be available at Gate 23A.

Data Warehouse

- Data warehouse with 6 Years of historical flight data
- Analytics Products
  - Airline competitive analysis
  - Airline route analysis
  - Airport operations analysis
  - On time performance metrics

Route Grouping	Route Sub Grouping	Market	Route	2016			
				January	February	March	April
Europe	North America	AMS -> PHL	AMS -> PHL	83.33	80.00	88.46	61.54
		BCN -> NYC	BCN -> JFK	87.50	80.95	75.86	66.67
		BCN -> PHL	BCN -> PHL			0.00	45.45
		BCN -> QMI	BCN -> MIA	45.45	38.10	65.52	57.14
		BRU -> PHL	BRU -> PHL	72.73	71.43	94.12	
		BSL -> NYC	ZRH -> JFK	66.67	68.75	74.07	69.23
		DUB -> NYC	DUB -> JFK			50.00	33.33
		DUB -> PHL	DUB -> PHL	81.82	83.33	90.32	78.57
		FRA -> CLT	FRA -> CLT	100.00	85.71	96.77	100.00
		FRA -> PHL	FRA -> PHL	70.00	90.48	96.00	92.31

Taxi Out Analysis - LHR

Taxi Out Time Box Plot: (LHR) London Heathrow Airport
Date Range: 14-Apr-2016 to 14-Apr-2016, Marketing Airline: All (operated by All)

Hourly Passenger Flow Chart: (LHR) London, EN, GB
Date Range: 14-Apr-2016 to 14-Apr-2016

Seat Capacity

- Resources hosted in our private data center and with Amazon Web Services (AWS)
  - Core data processing and service layer resides in the private data center
  - API endpoints that require low latency connections live in AWS
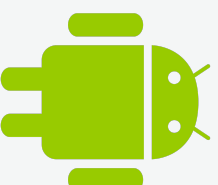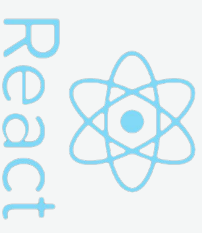- Private infrastructure virtualized with VMWare

- Agile development
  - Small, fast teams
  - Product centric
  - Customer interactive
  - Semi-autonomous
- Automate everything
- Measure everything
- Total system awareness
- Industry best practices and tools
- Recruit and hire the best talent
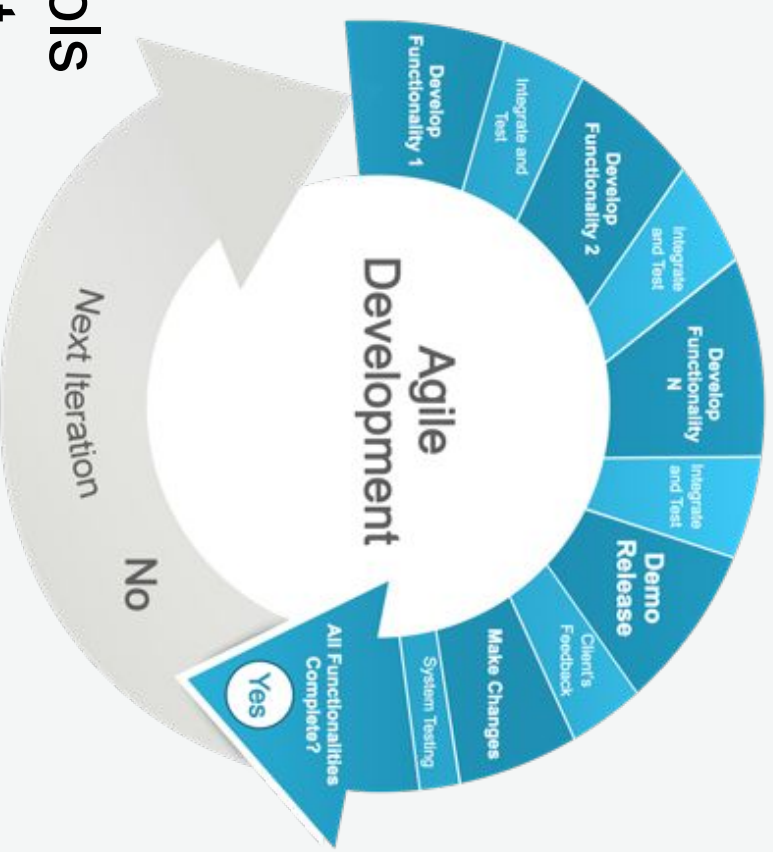
- Java 8 backend
- Node.js micro-service edge layer
- PostgreSQL, MongoDB databases
- Web - HTML5, React, Redux, Elasticsearch
- Mobile - iOS/Android

FLIGHTSTATS

- http://flightstats.com
- Data for your apps: http://developer.flightstats.com
- The Hub: https://github.com/flightstats/hub
- email: chad@flightstats.com