ArcGIS Velocity at DFW Airport

Connecting real-time signals to operational decisions

DATAMINR THREATS / IOC WEATHER / SAMSARA SAFETY

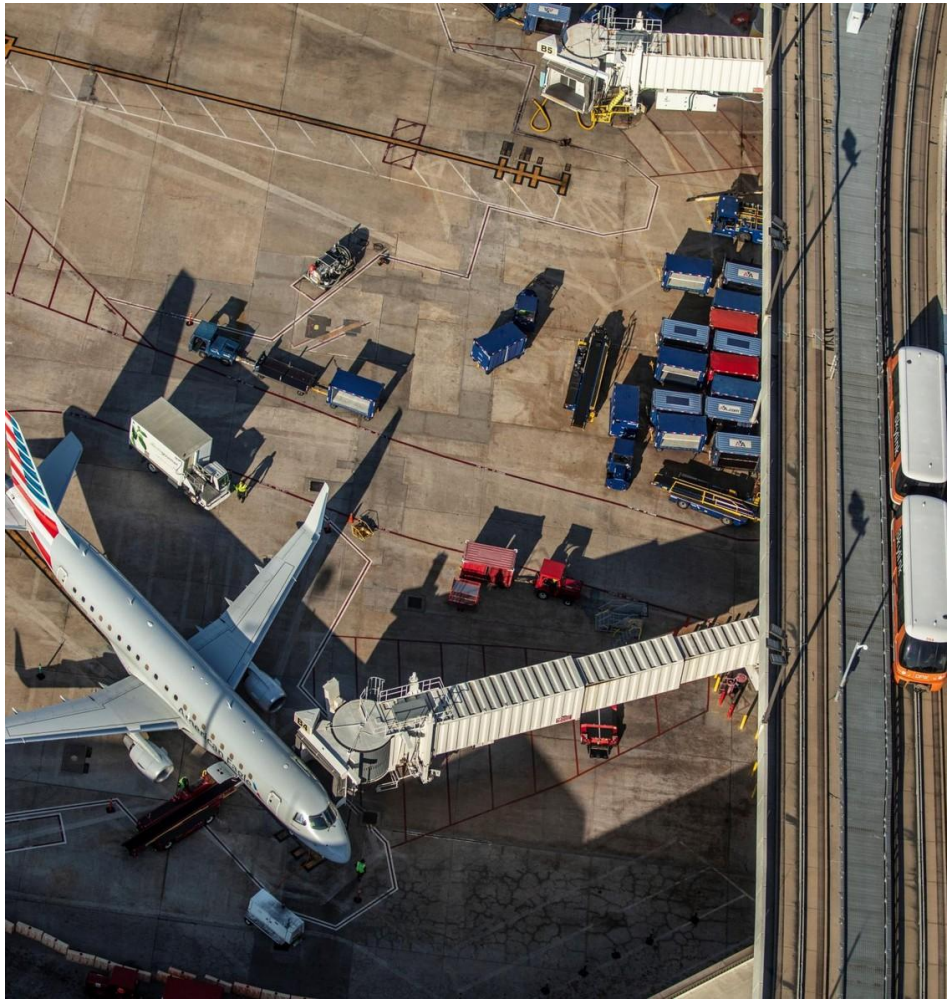
Technology Services • Geospatial Data
November 2026



Today’s Flight Plan

From airport context to three connected use cases

1. **Set the context**
   Where Velocity belongs in DFW operations
2. **Threat awareness**
   Dataminr and the threats dashboard
3. **Operational weather**
   IOC dashboard and impact-focused alerts
4. **Fleet safety**
   Samsara score context without duplicate maps



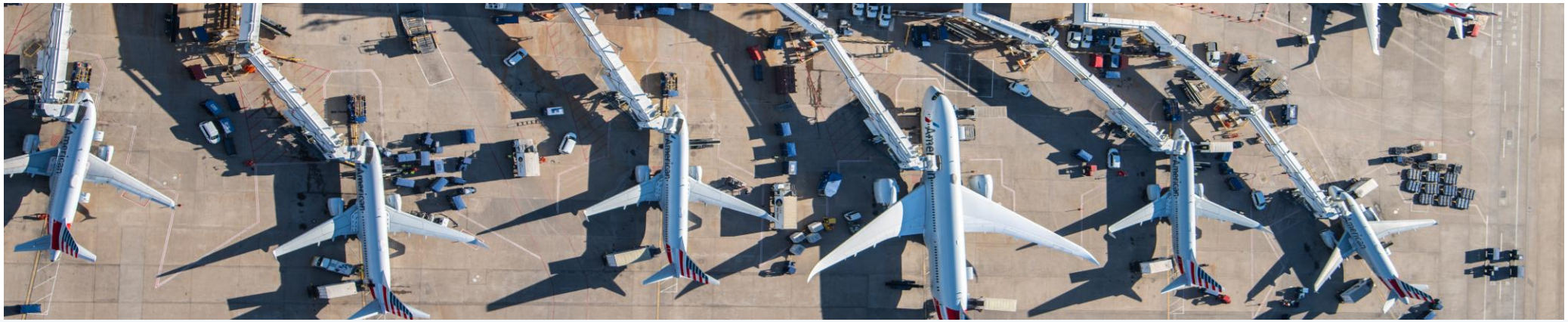
DFW operates at city scale

Real-time conditions intersect across terminals, roads, facilities, people, and vehicles.

26.9
square miles

7
runways

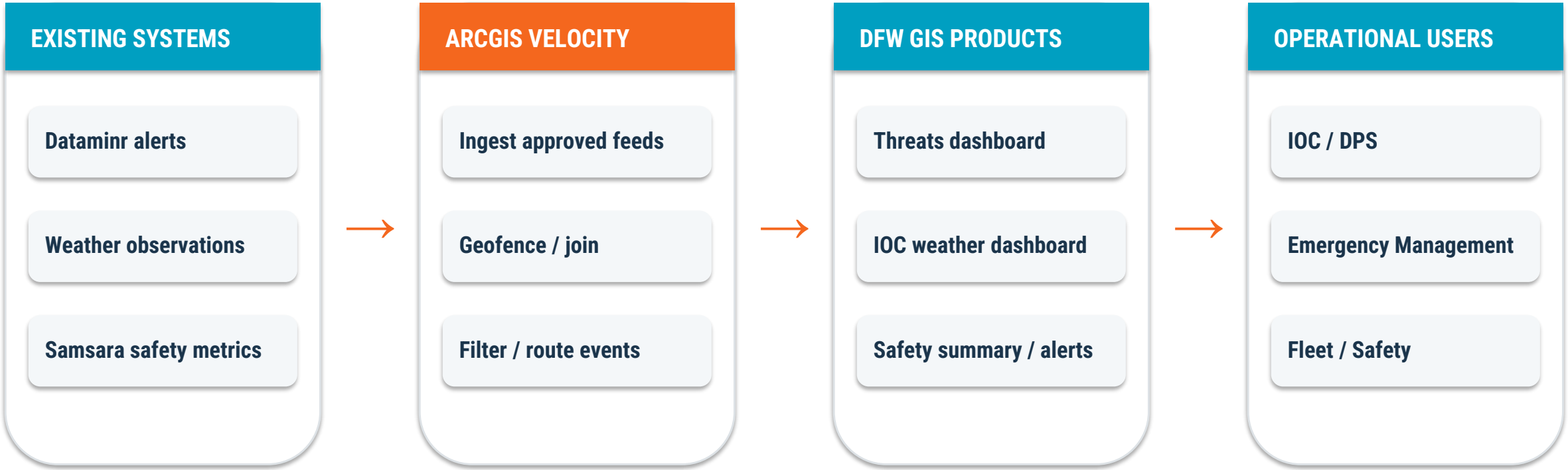
5
terminals



The real challenge is connecting approved signals to location, ownership, and action.

Velocity is the spatial event layer

It enriches live observations; it does not replace Dataminr, Samsara, or existing DFW applications.



One governed pipeline; multiple approved consumers. No need to rebuild vendor-native capabilities.

Three DFW use cases, one design principle

Preserve the source systems; bring location and operational context to existing dashboards.

01

THREATS

DATAMINR

Spatial context for approved threat alerts

02

WEATHER

IOC

Impact-based awareness in the weather dashboard

03

SAFETY

SAMSARA

Driver-score context without duplicating maps

Velocity should only be used where it adds operational value beyond the vendor's existing product.

01

Threat Awareness

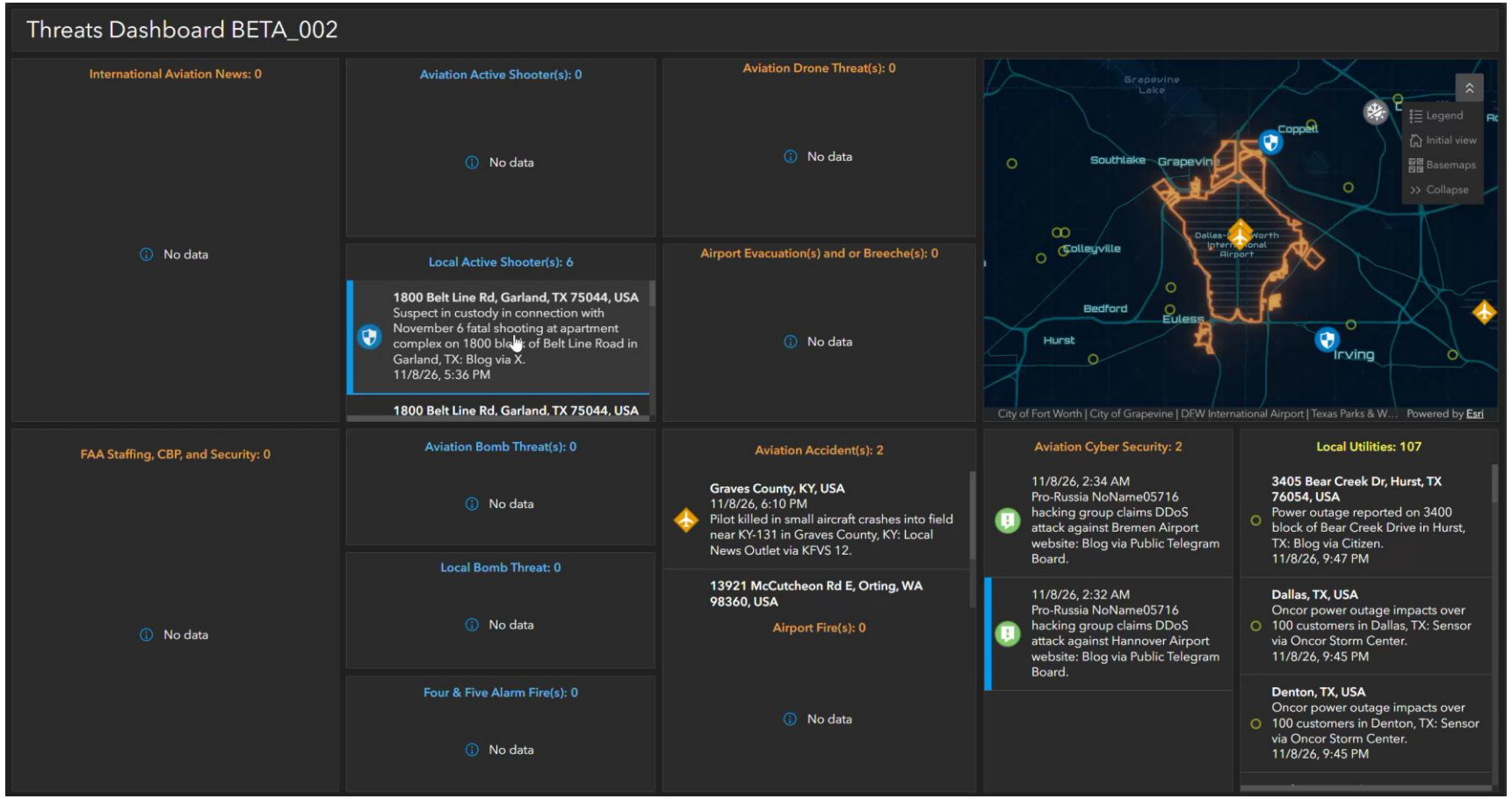
Dataminr → DFW threats dashboard



USE CASE 01

DFW Threats Dashboard

Real-time alerts become more useful when referenced to DFW facilities, roads, and operating areas.



CONTEXT

Airport zones, terminals, roads

PRIORITY

Severity, relevance, and proximity

ACTION

IOC / DPS situational awareness

02

IOC Weather

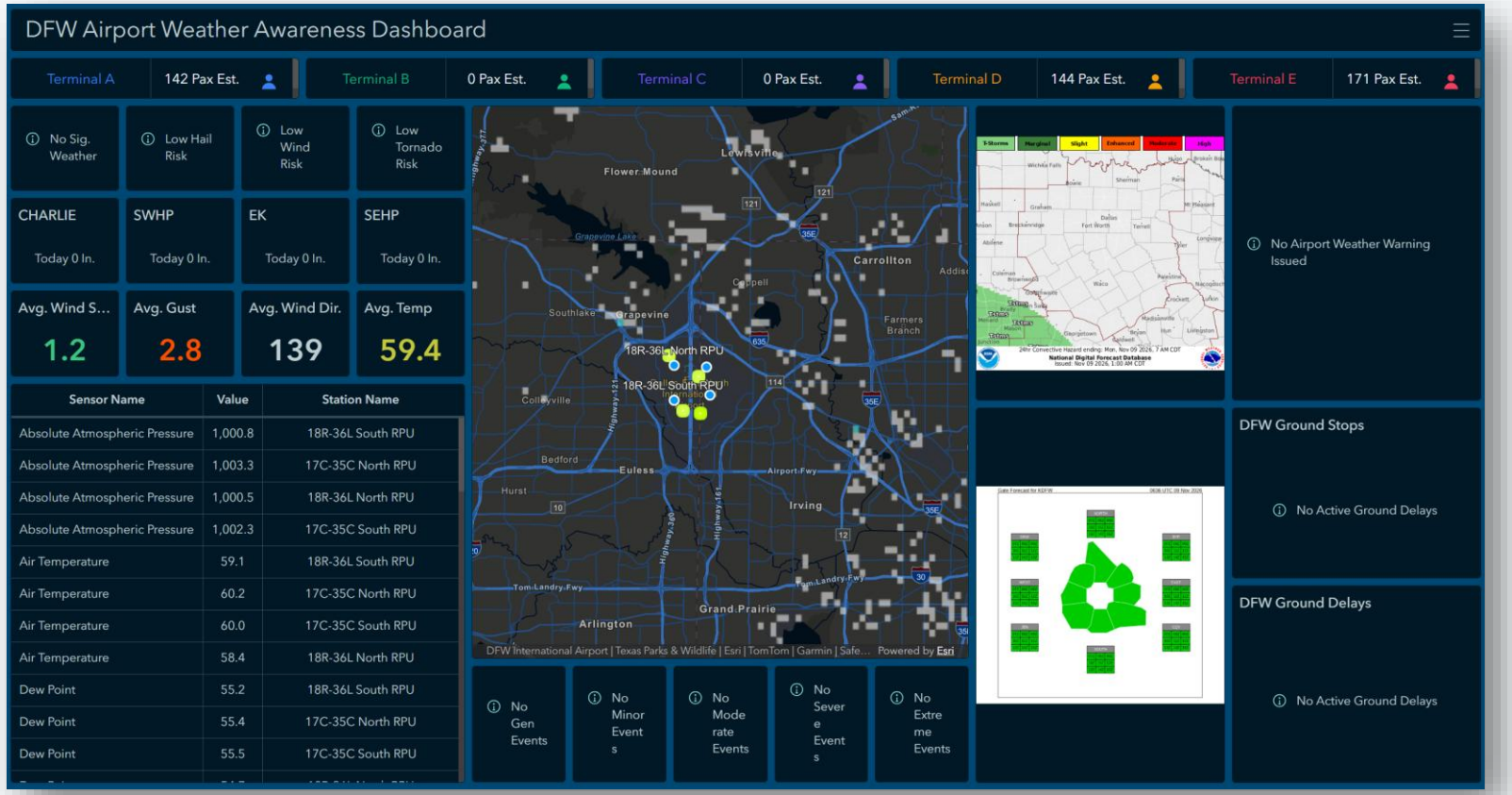
Operational awareness
with spatial context



USE CASE 02

IOC Weather Awareness Dashboard

Use the existing dashboard as the operational view; apply location-based rules where they improve response.



LIVE CONDITIONS

Terminal and airfield weather awareness

AREA IMPACT

Rules tied to campus zones and assets

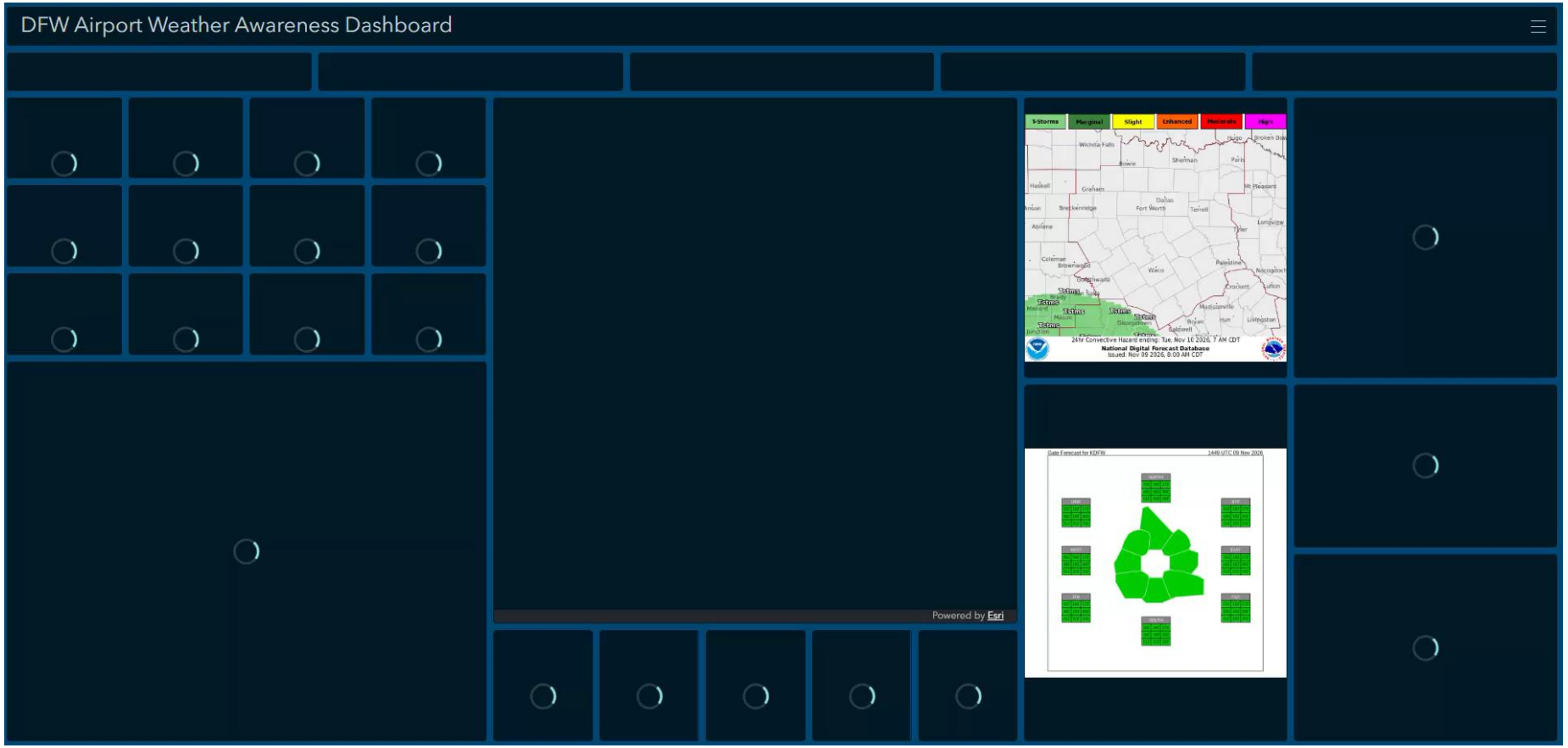
ALERT ROUTING

Who should know and what changes

USE CASE 02

IOC Weather: Suggested Live Demo

Show how an observation becomes operational context at the correct airport location.



01 OBSERVE

Weather event arrives

02 EVALUATE

Threshold + location

03 COMMUNICATE

IOC view / alert

03

Fleet Safety with Samsara

Use the data; don’t duplicate the application.



USE CASE 03

Samsara: Enhance, Don’t Duplicate

DFW did not want to reinvent the wheel by recreating Samsara’s map experience in GIS.

KEEP IN SAMSARA

1. Native vehicle and fleet maps
2. Driver coaching and safety workflows
3. Event footage and vendor-native details
4. Authoritative scores and source records

USE VELOCITY / GIS FOR

1. Approved safety-score context or summaries
2. Joined operating zones / departments
3. Cross-system dashboard KPIs and filters
4. Time-based trends and targeted alerts

Design rule: no duplicate Samsara maps unless a documented operational gap justifies them.

DFW

USE CASE 03

Samsara Safety Score: Where Velocity Adds Value

An example of vendor-native safety data supporting cross-system context, not a new fleet application.



VELOCITY

Ingest approved data
Normalize + enrich

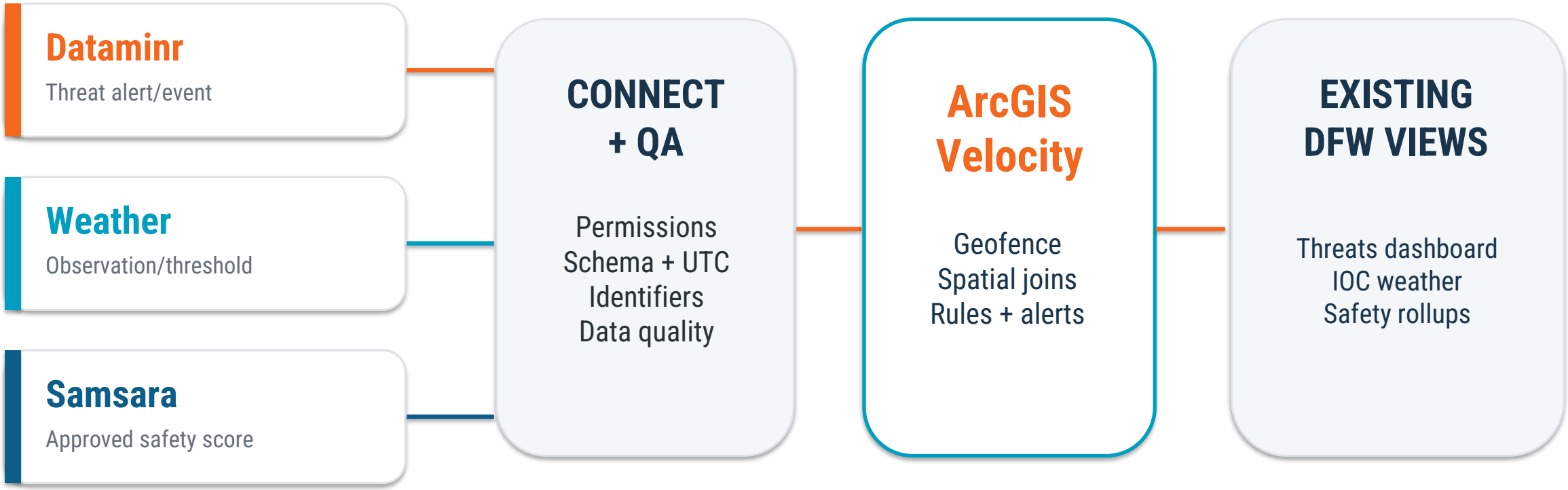
DFW CONTEXT

- Score trend by authorized group
- Safety event summary by unit
- Optional asset / zone context
- Cross-system executive KPIs

Integration depends on Samsara API rights and DFW's driver-data access, retention, and reporting policy.

One Integration Pattern Across Three Systems

Use event contracts and controlled source permissions before analytics, notifications, and display.



Dataminr and Samsara remain systems of record; DFW GIS supplies approved, shared spatial context.

Delivery Choices and Operating Guardrails

Choose the simplest secure deployment that supports the actual use cases.

VELOCITY ONLINE

- Esri-managed environment
- Real-time + big-data analytics
- Confirm data movement / residency policy

VELOCITY ENTERPRISE

- DFW-controlled hosting option
- Enterprise 12.1: real-time analytics
- Confirm licensing, topology, security

DATA RIGHTS	PRIVACY	RELIABILITY	OWNERSHIP
Contract/API scope	Driver and incident details	Monitoring and runbooks	Operator approval

DFW

Measure Decisions, Not the Number of Maps

For each use case, demonstrate faster clarity, better relevance, or fewer duplicated workflows.

THREATS

1. Alert relevance
2. Time to acknowledge
3. Correct zone match

WEATHER

1. Event-to-dashboard delay
2. Threshold accuracy
3. Operator usefulness

FLEET SAFETY

1. Score refresh cadence
2. Approved audience
3. No duplicate map build

A successful use case should improve an operational decision without creating an unnecessary new app.

DFW

Future State

Curbside LiDAR + FlightAware

ArcGIS Velocity at DFW Airport

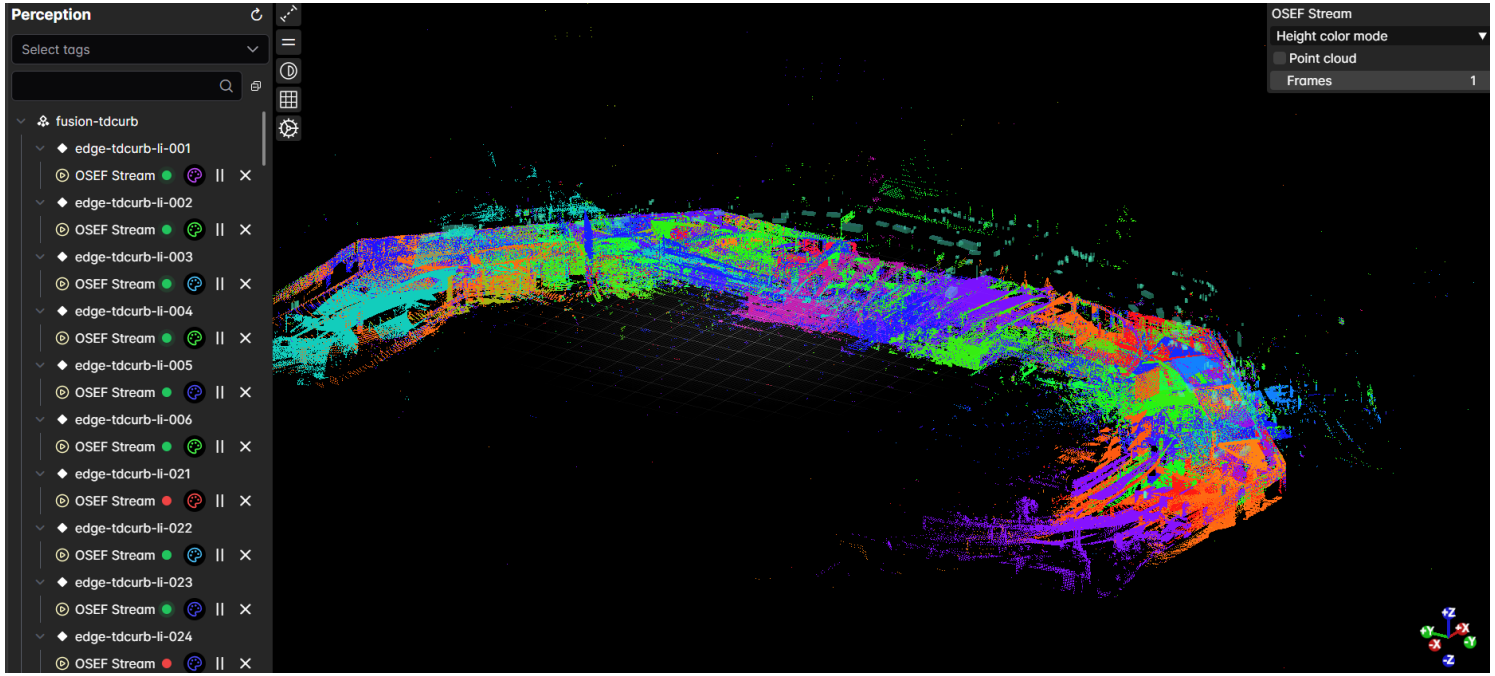
From sensor events and aircraft movement to airport-wide operational awareness.



FUTURE STATE 01

Future State: Curbside LiDAR Intelligence

Convert approved LiDAR detections into live curbside context for terminals and roadway operations.



01 CLASSIFY

Approved counts, vehicle classes, dwell and queue events

02 LOCATE

Match detections to terminal, curb level and managed curb segment

03 ACT

Trigger rules and publish zone status into DFW operational views

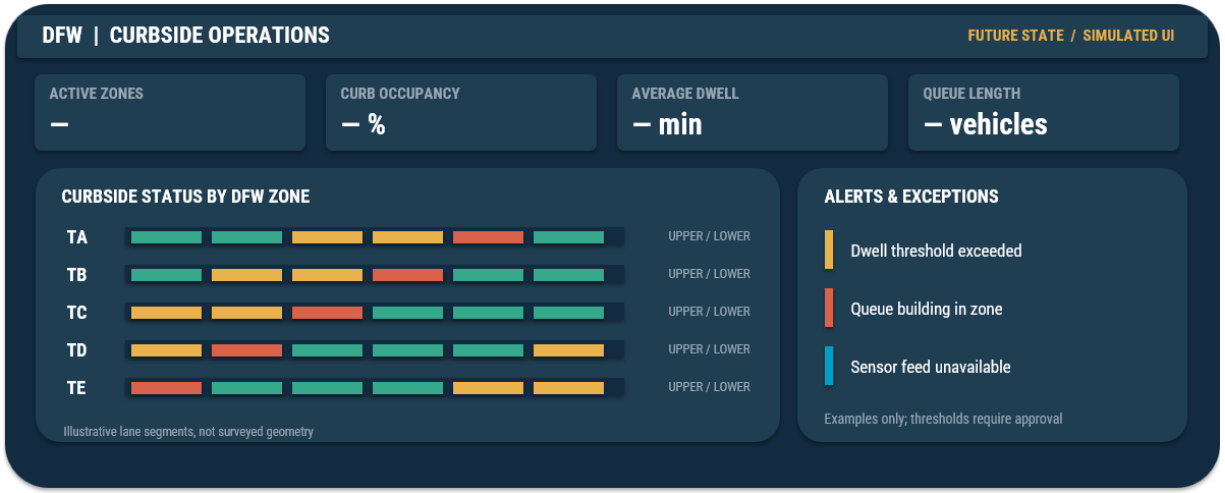
LiDAR platform → normalized events → Velocity geofences / thresholds → curbside operations

FUTURE STATE 01

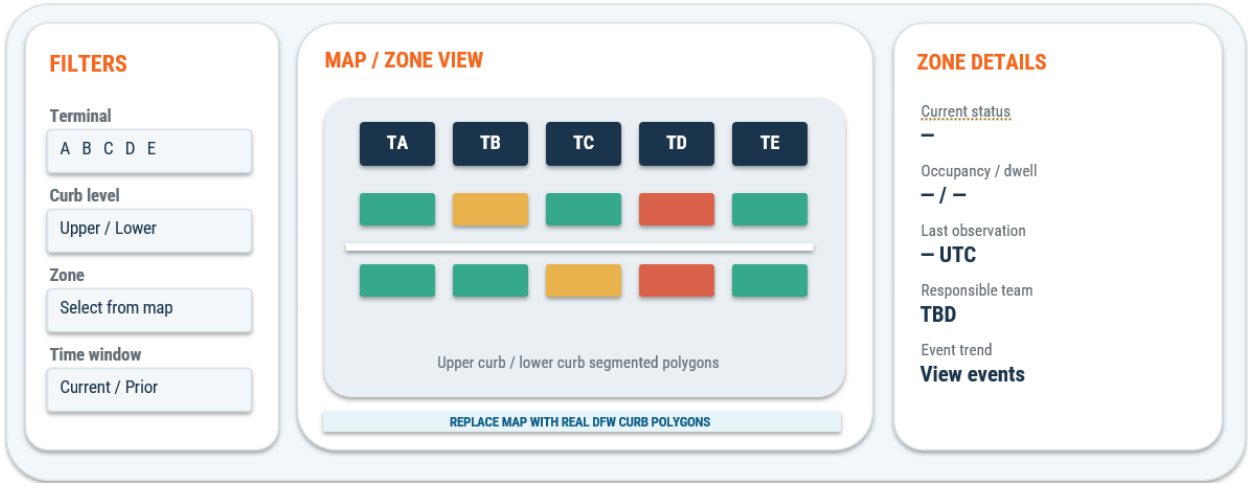
Future State: Curbside Operational Views

One event stream can serve a focused Dashboard and a map-centric Experience Builder.

CURBSIDE DASHBOARD



CURBSIDE EXPERIENCE BUILDER



ZONE OCCUPANCY

DWELL TIME

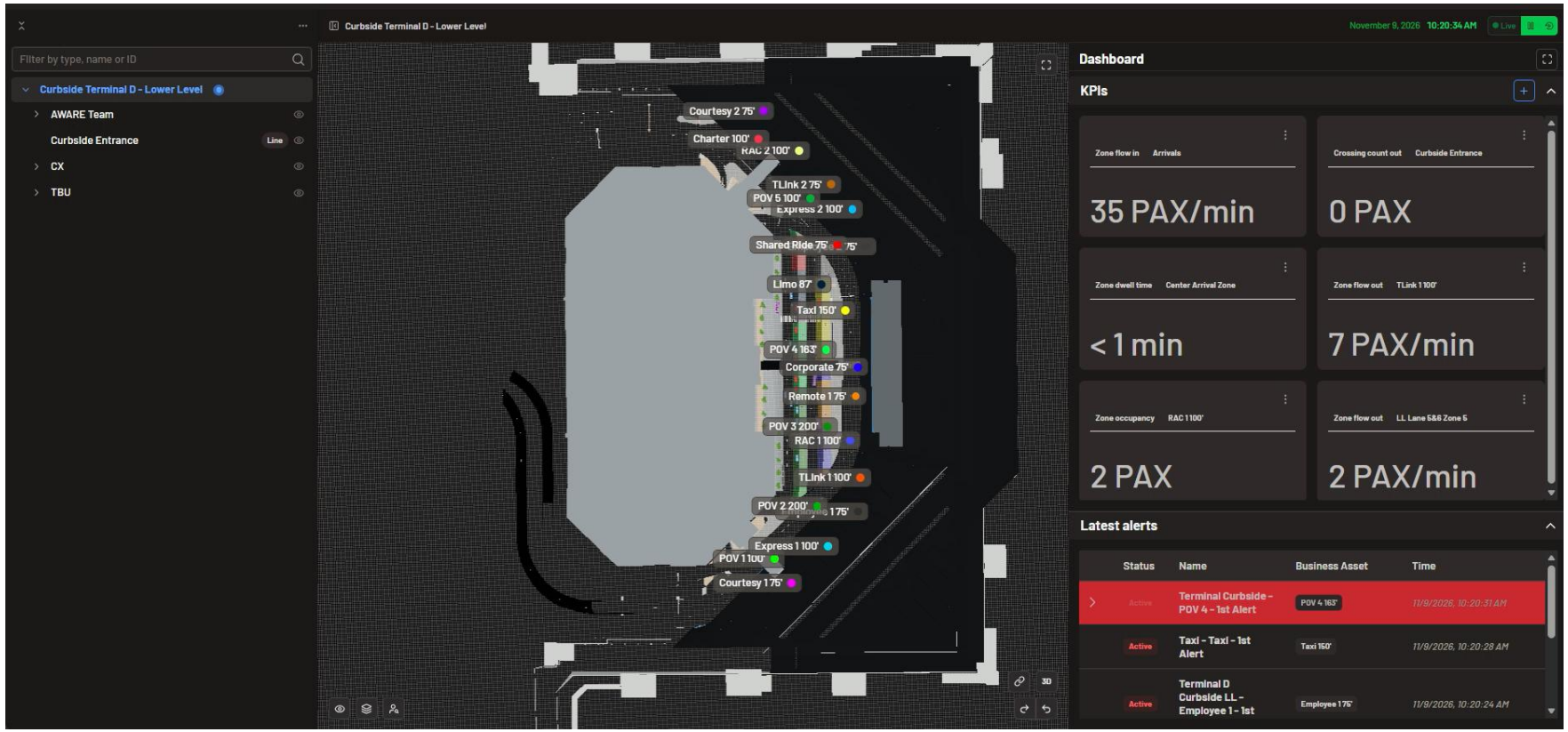
QUEUE PRESSURE

ACTIVE ALERTS

FUTURE STATE 01

Demo: LiDAR Event to Curbside Awareness

A 30–45-second sequence should show the source event, spatial rule, and operator-facing result.



1 **CAPTURE 1**

Native LiDAR sensing / zone event

2 **CAPTURE 2**

Velocity filter, enrichment or threshold

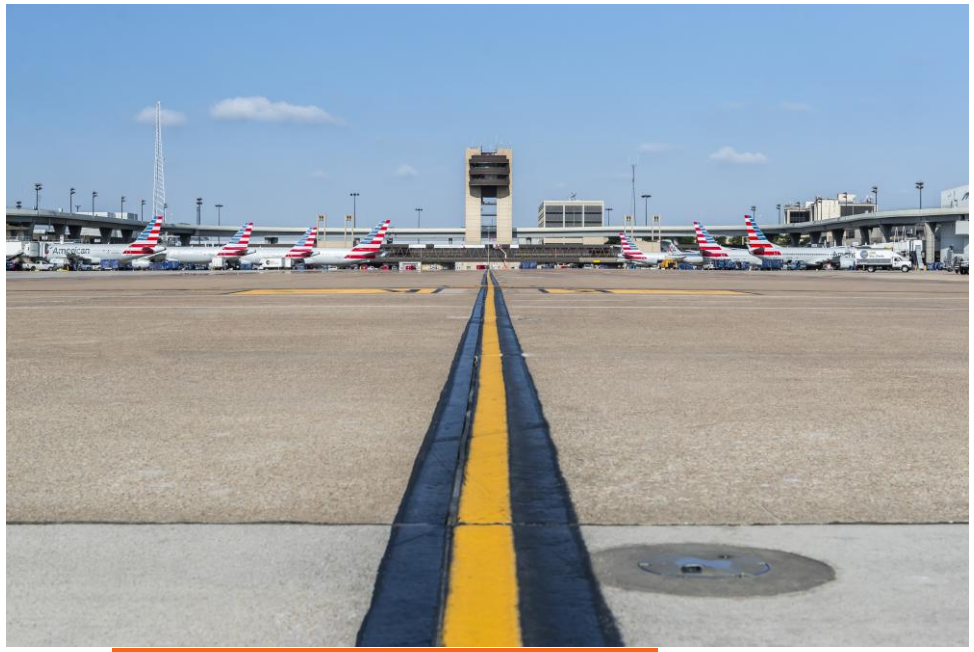
3 **CAPTURE 3**

Dashboard or Experience Builder update

FUTURE STATE 02

Future State: FlightAware Across Air + Surface

Enrich authorized flight position and surface movement data with DFW airfield geography.

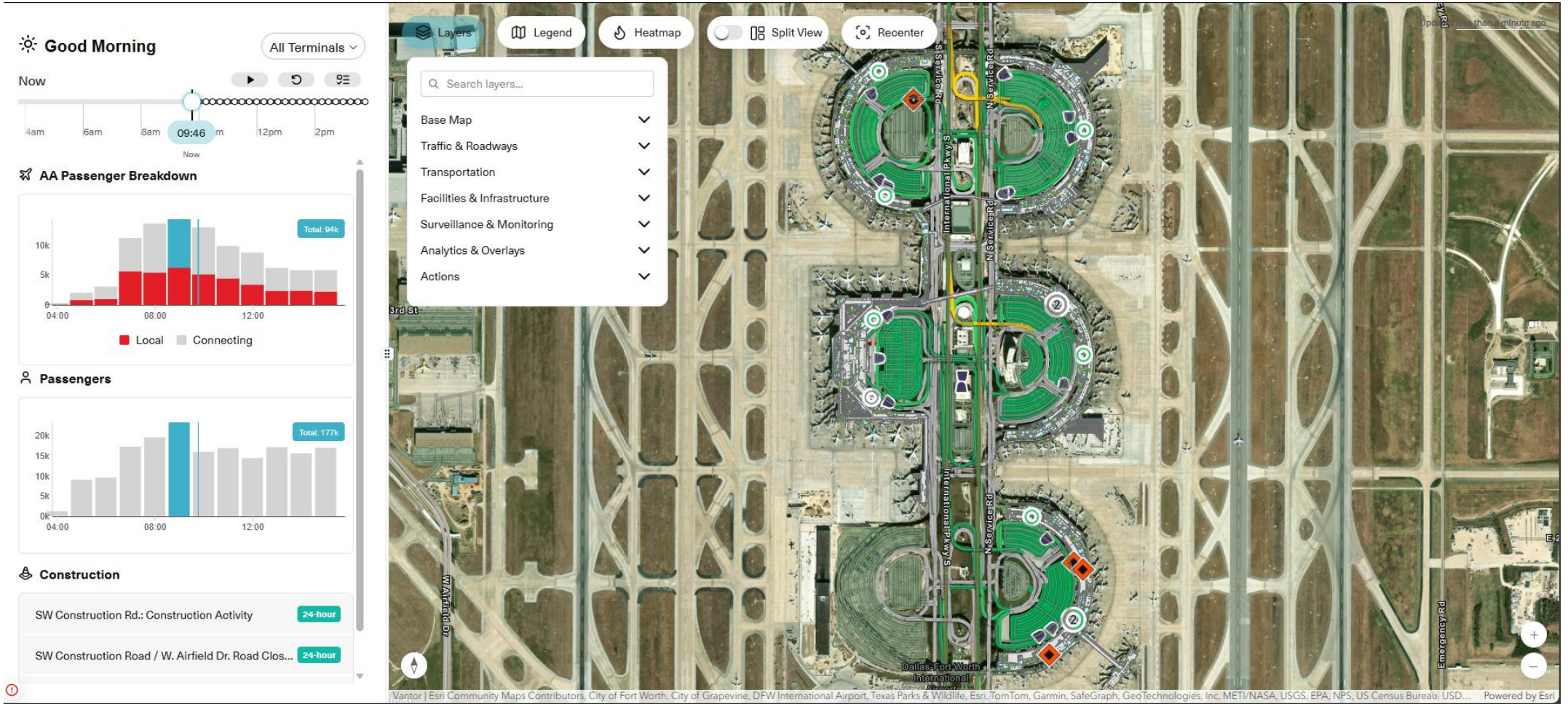


AIRBORNE TRACKS	Inbound / outbound aircraft positions and track context
SURFACE TRACKS	Ground-position observations where licensed and available
DFW SPATIAL CONTEXT	Associate tracks to runways, taxiways, ramps and AOA zones
OPERATIONAL PRODUCTS	Filtered awareness layers, movement summaries and trends

FUTURE STATE 02

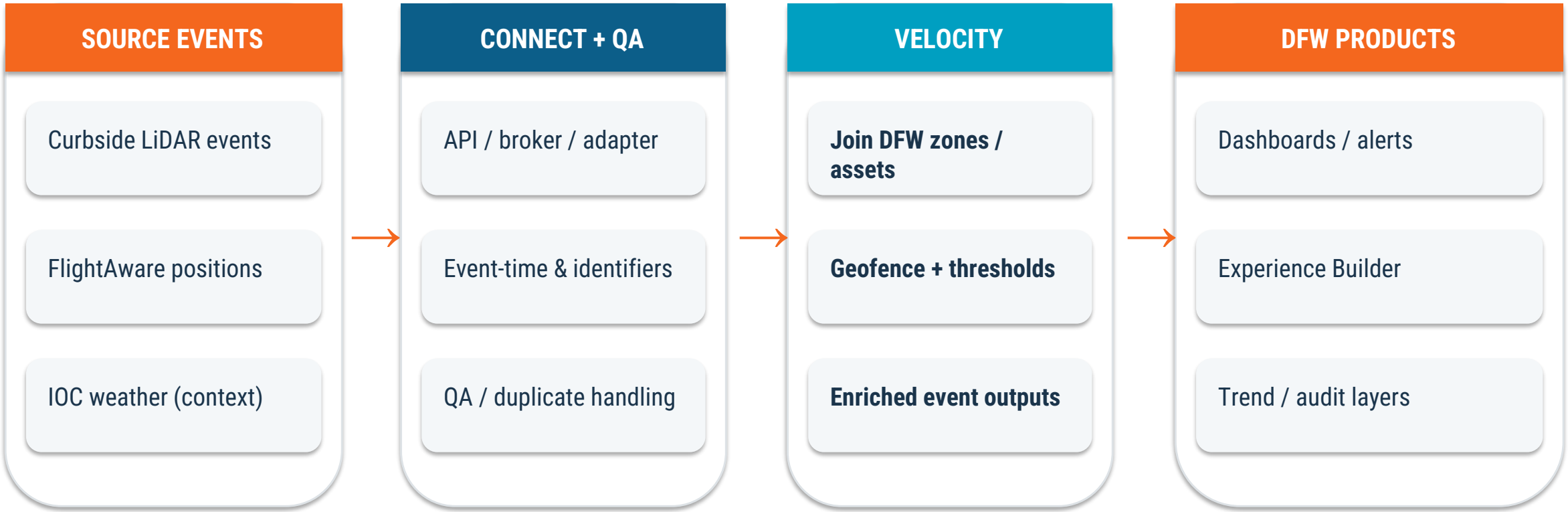
Future State: AOA Operating Picture

A DFW Experience Builder can pair aircraft movement context with airfield zones and operational filters.



Future State: One Stream, Multiple Operations

Velocity links approved signals to DFW geography while each source system retains its original role.



Data rights + event quality + secure access + operational ownership must be approved before production.

Better decisions.
Not more maps.

A connected, spatially aware DFW built on the systems we already trust.

DFW GIS
GEOGRAPHIC INFORMATION SYSTEMS

