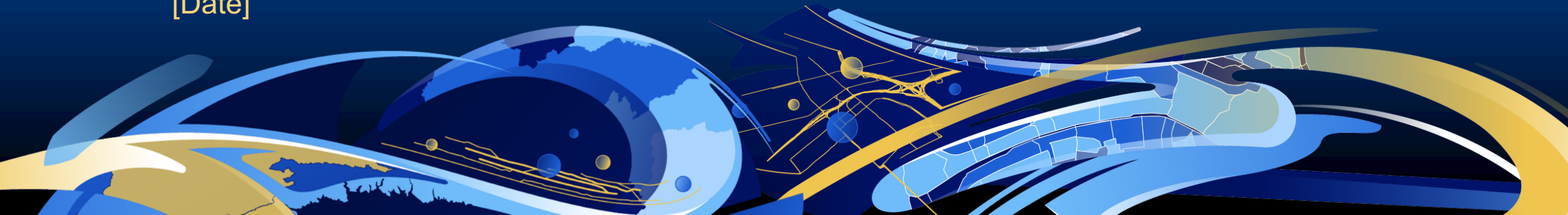




# ArcGIS Velocity

Presenter

[Date]



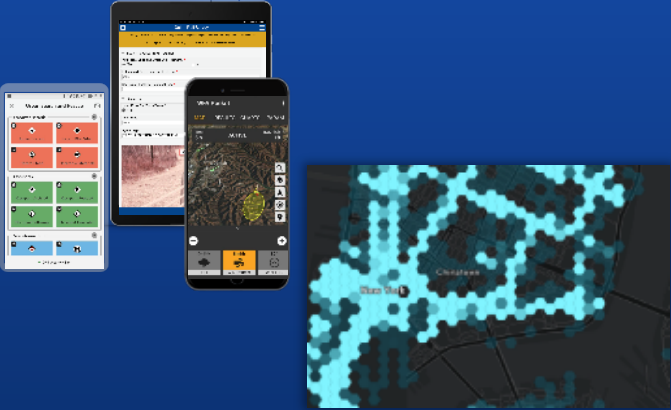
welcome  
to the  
connected world



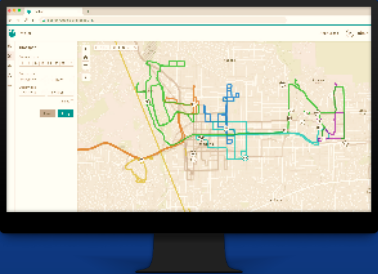


# The Velocity of Mission Critical Real Time Data Is Increasing

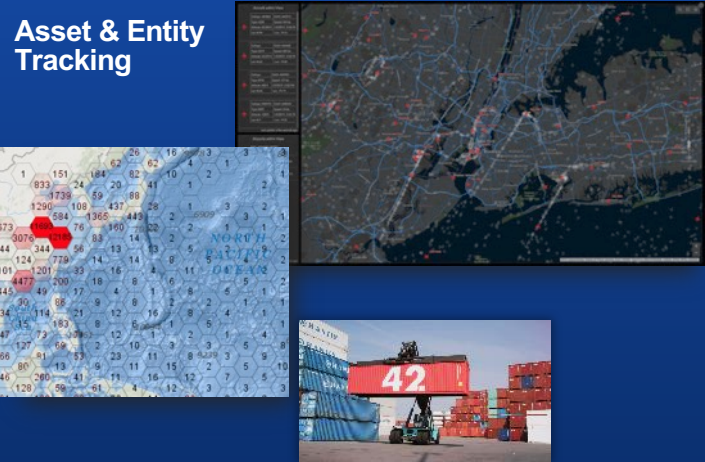
Personnel Tracking



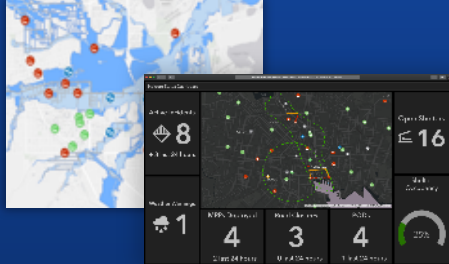
Resource Optimization



Asset & Entity Tracking



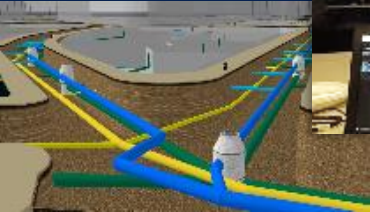
Infrastructure Protection



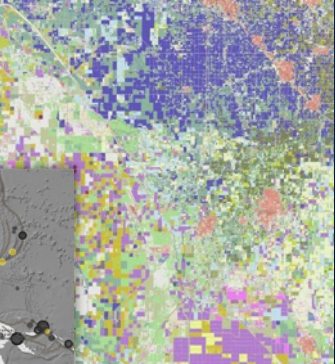
Operations Monitoring



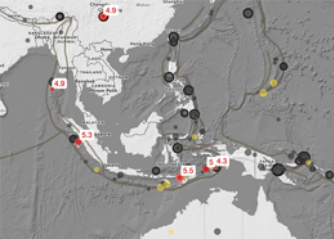
SCADA Integration



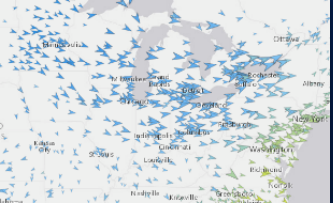
Soil & Crop Monitoring



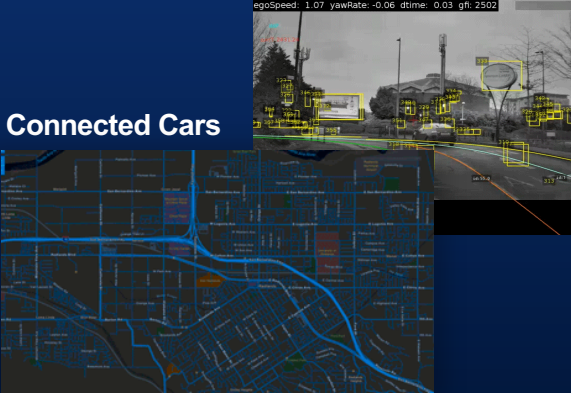
Anomaly Detection



Air Quality Monitoring



Connected Cars







# Key Challenges in Meeting Real-Time Data Needs

Data is high volume, complex and noisy



# ArcGIS Velocity delivers a complete solution

Managing and analyzing high volume and velocity data in support of mission critical applications in spatial context



**Ingest**



**Analyze**



**Alert**



**Act/Adapt**

# ArcGIS Velocity

Real-time and big data capabilities for the ArcGIS Cloud

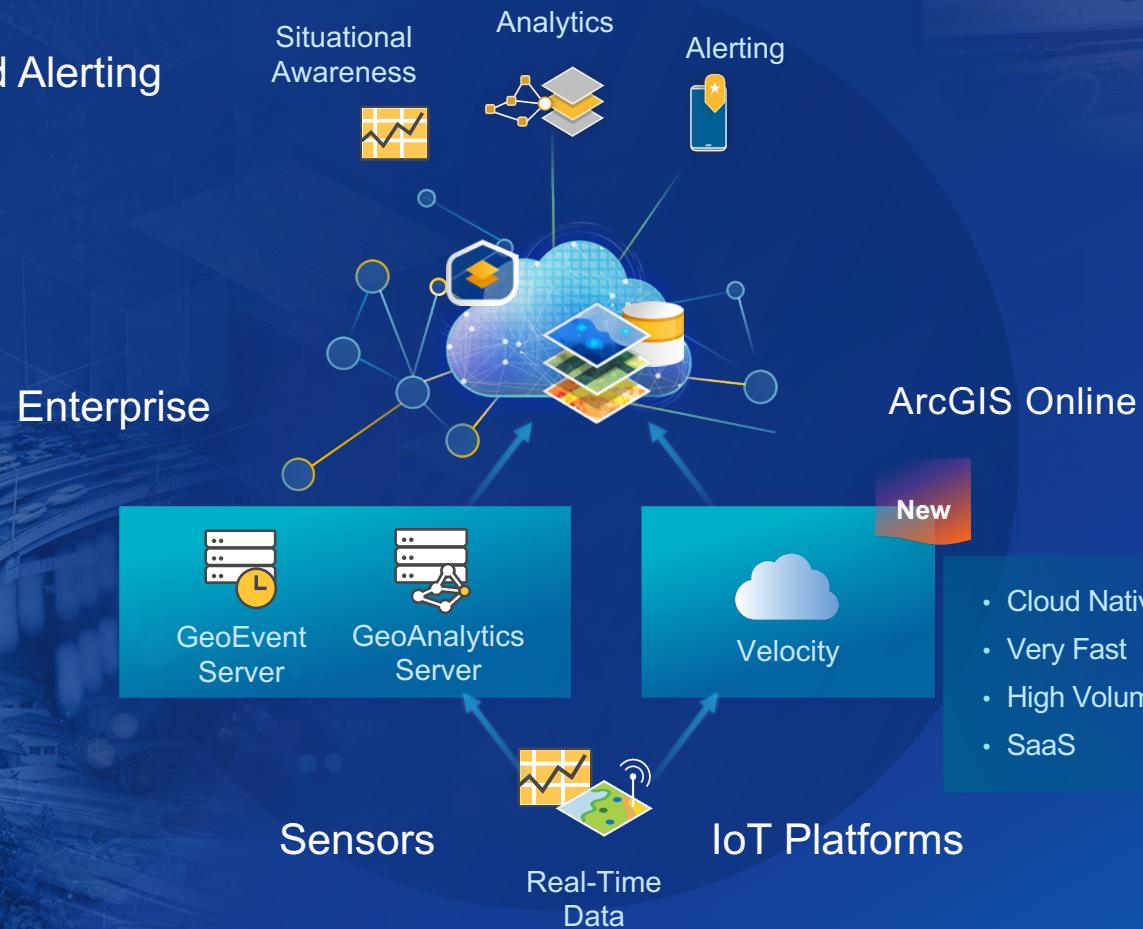
- Capabilities
  - Ingest real-time sensor data
  - Analyze data to detect incidents
    - In real-time
    - In *near* real-time
    - Over time
  - Take action
- Scalable
- Resilient





# Real-Time Visualization & Analytics Integrating Sensor Networks and IoT

Supporting High-Velocity Data Streams  
Tracking, Monitoring and Alerting



*Collapsing the Time from Measurement to Decision Making*





# Ingest & Visualize Real-Time Streaming Data

Configure feeds that connect to real-time information from multiple networks or IoT data sources







# Analyze Data In Real-Time

Process individual observations as  
they are ingested





# Push Automated Actions & Alerts

Trigger alerts and actuate devices under  
specific conditions

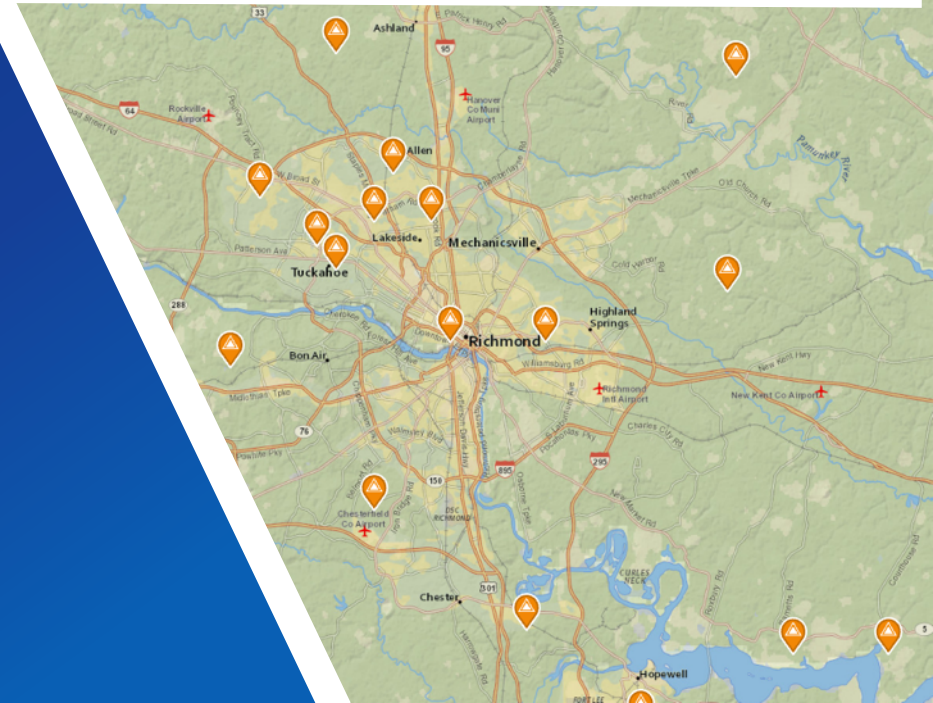






# Perform Batch Analysis on Stored Data

Use big data analytics to gain insights  
from massive datasets





# Disseminate Information & Findings

Share your analysis results with others







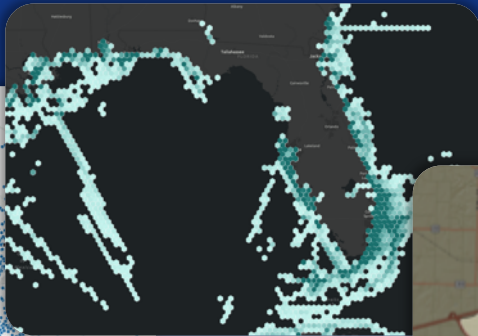
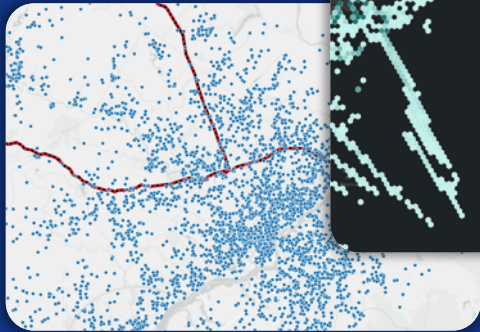
# ArcGIS Velocity

Capabilities for...



## Visualization

### Ingestion



### Geofencing



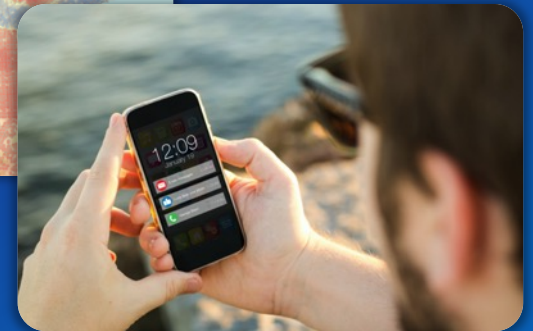
### Incident Detection



## Trend Analysis



### Alerting





# Personnel Tracking & Analytics





# Asset & Fleet Tracking





# Infrastructure Monitoring







# How It Works

# ArcGIS Velocity

Leverage sensor and IoT data for geospatial reasoning



*...connects to industry leading cloud IoT platforms, data lakes, and sensor vendor APIs*



# Feeds

Ingest and visualize real-time data streams

- **Connect to data sources**
  - ArcGIS (Feature & Stream Layers)
  - Cloud IoTs (Amazon, Azure, Cisco)
  - Web & Messaging (HTTP, Kafka, RSS...)
- **Schema auto-discovery**
- **Behaves like a stream layer**
- **Immediate display of new data**

**ais\_ship\_positions** Details Logs Metrics

Feed by jdoe\_a4iotqa

Simulated AIS ship positions from the Marine Cadastre Automatic Identification System

Running at 5.33 events/second

Created: 09/23/2020 Updated: 09/23/2020 Started: 09/23/2020 9:51 AM

Edit Clone Share Delete Stop

Add to new analytic Item details Open in Map Viewer

**Feed details**  
Type: HTTP Simulator

Field separator	.
Features per execution	30
Repeat simulation	true
Interval for sending events (milliseconds)	1000
Time field index	1
URL	https://s41cs-public-s3-us-west-2.amazonaws.com/...
Convert to current time	true

ArcGIS Velocity John Doe jdoe\_a4iotqa

Home INPUT Feeds Feeds ANALYTICS Real-Time Big Data OUTPUT Layers

Filter by name

Create feed 1-2 of 2 Table

Title	Executable	Status	Input rate (events/sec)	
ais_ship_positions	Yes	Started	30	
satellite_locations	Yes	Stopped	n/a	

...discover and share real-time data streams as items in ArcGIS

# Real-Time Analytics

Process and analyze real-time data streams

- **Input Sources**

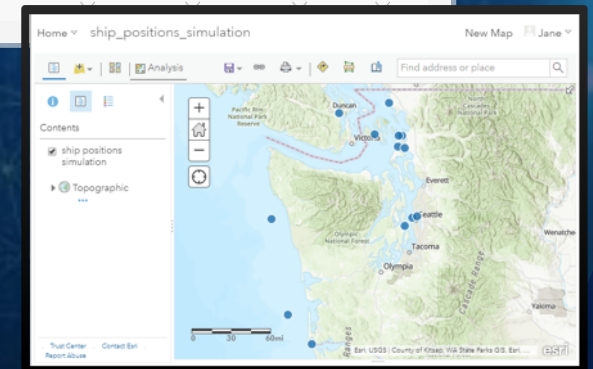
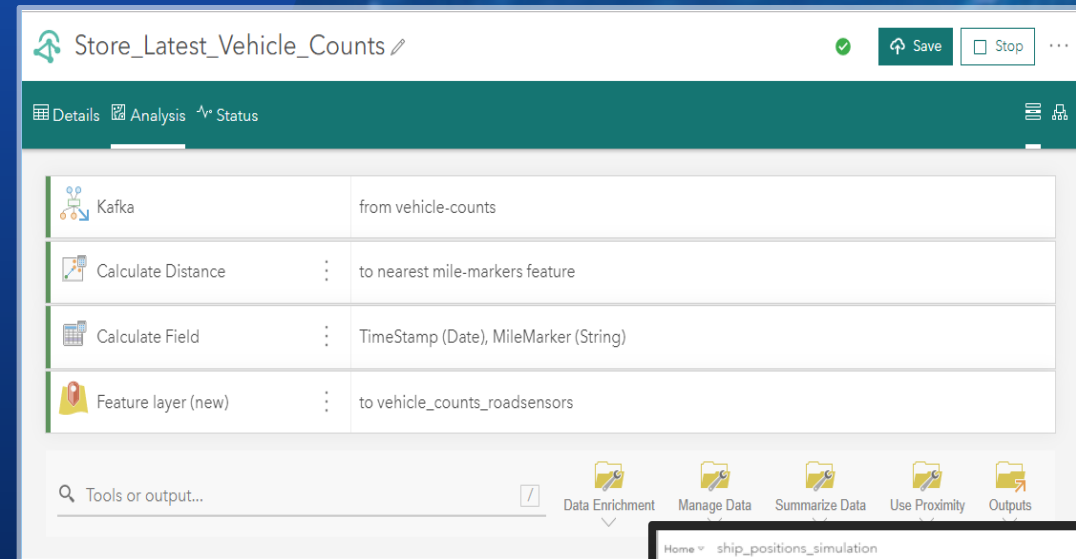
- Feeds (one or more)
- Static data sources (enrichment, joins)

- **Analytic Tools**

- Build a pipeline of zero to many....
- Analyze individual observations

- **Outputs**

- ArcGIS Layers (Map & Feature)
- Alerts & Notifications (Email, Actuations)



*...generating alerts from and triggering actions to IoT devices in real-time*



# Big Data Analytics

Perform batch analysis on stored big data

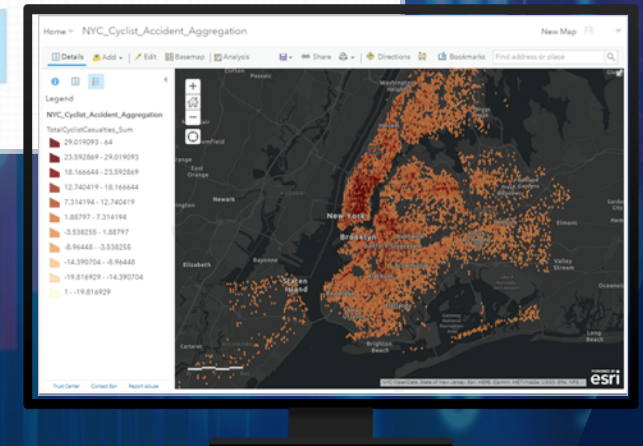
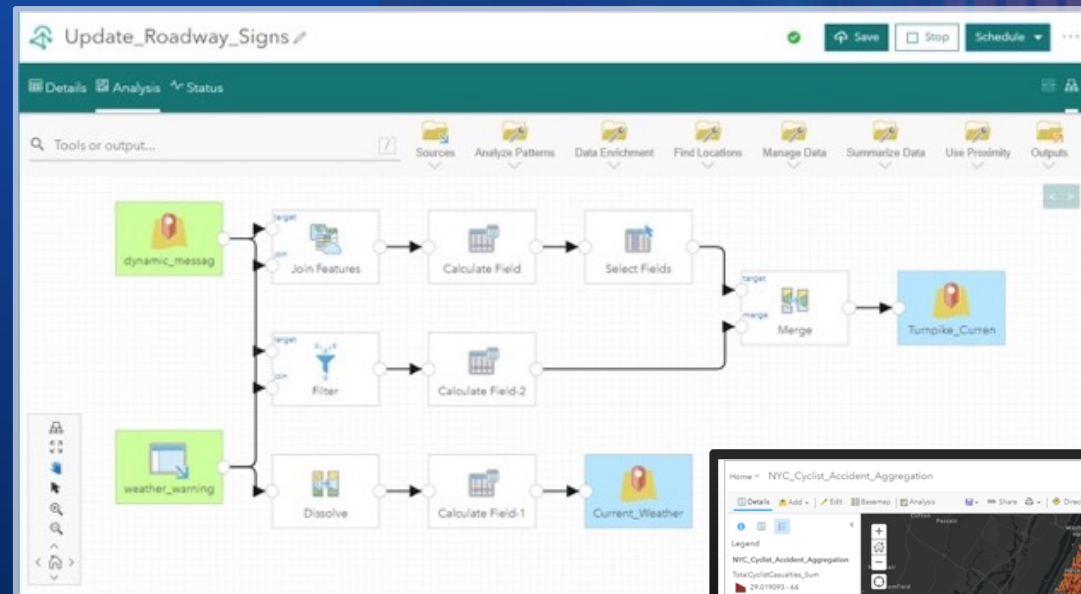
- **Input Sources**

- ArcGIS (Feature Layers)
- Cloud (Amazon S3, Azure Blob)
- Web & Messaging (HTTP, RSS...)

- **Analytic Tools**

- Analyze Patterns
- Find Locations
- Manage, Summarize, Enrich Data

- **Output results to one or more destinations**



...big data analysis pipelines on demand or scheduled for recurring execution



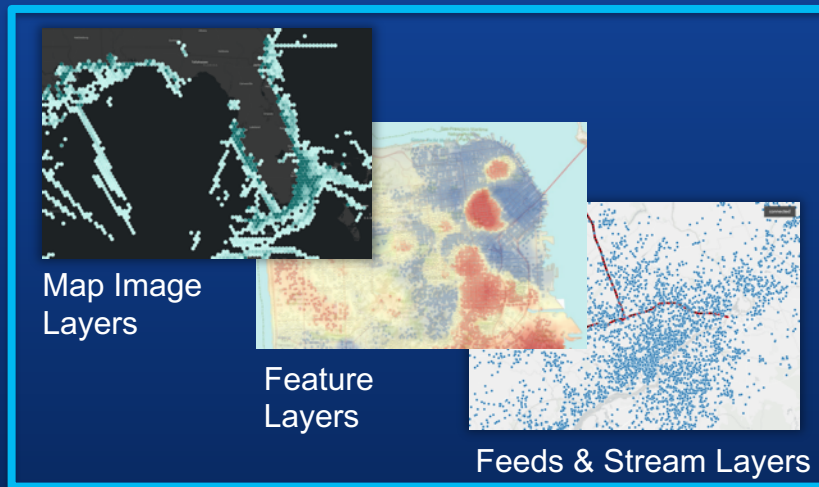
# How to Get Started



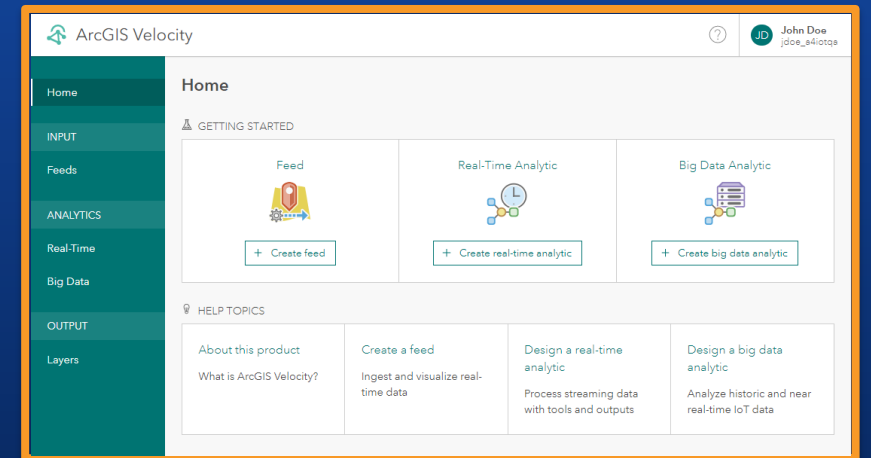
# Licensing

An annual subscription on top of ArcGIS Online

## Layers & Feeds - available to all users



## App – Creators and GIS Pros



...follows the same business rules and policies of ArcGIS Online

# License Levels

## Functionality Comparison

	Standard	Advanced	Dedicated
Feeds	✓	✓	✓
Real-Time Analytics	✓	✓	✓
Big Data Analytics (ad hoc)	✓	✓	✓
Big Data Analytics (scheduled)		✓	✓
Big Data Analytics (massive scale)			✓



# License Levels

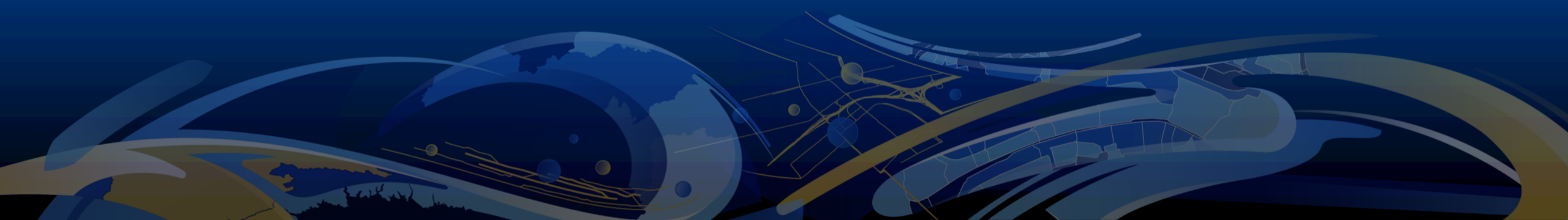
## Capacity Comparison

	Standard	Advanced	Dedicated
<b>Velocity</b>	25 KB/s (~100 events/sec)	250 KB/s (~1,000 events/sec)	2500 KB/s and up* (~10,000 events/sec)
<b>Storage</b>	100 GB	1 TB*	3 TB and up*
<b>Running Feeds &amp; Analytics</b>	5	10*	20 and up*

\* Subscription can be expanded with add-ons for processing & storage



# Questions?







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THE  
SCIENCE  
OF  
WHERE®