

The World is Driven by Data

Information Services Keynote

Presented to: **ATIEC 2019**

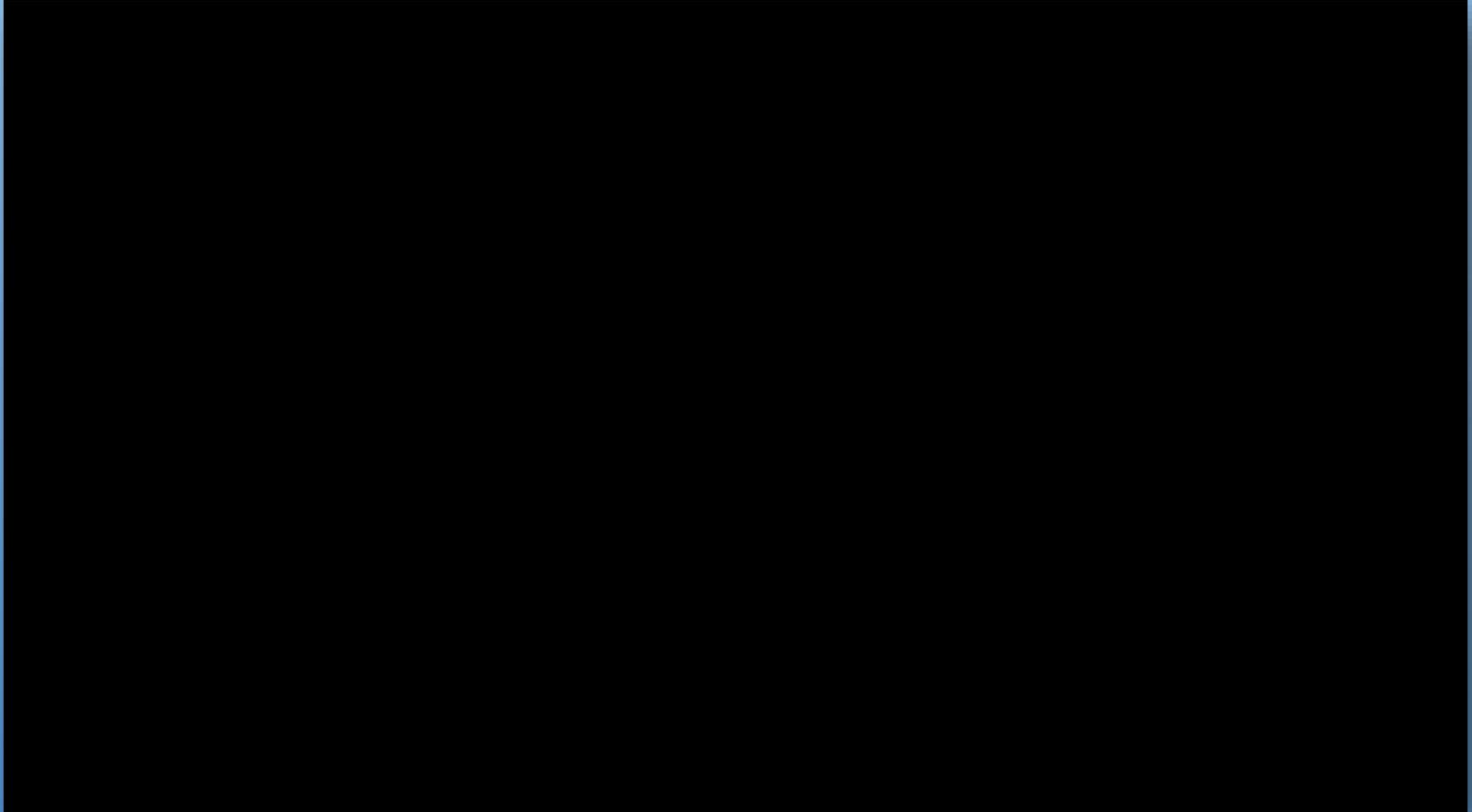
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Information, & Network Programs (CINP)**

Date: **September 23, 2019**

Aviation Information World - Forecasting the Future



The World is... *Driven By Data*



Video Source: <https://www.videvo.net/video/purple-data-globe-concept/4815/>

ATHEC

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The Nation's Aviation Industry is... *Driven By Data*

“Delays impact travelers, air carriers and aviation professionals to the tune of billions of dollars annually”

Source: Airlines for America “U.S. Passenger Carrier Delay Costs”



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SWIM

Information Access to
Transform the Aviation
Community.



Enables new and cutting edge tools and applications.



Facilitates an innovative, efficiently run airspace.



Saves operating and implementation costs.

- Replaces unique interfaces with **modern standards based data exchange**
- **Leverages a single interface** to receive multiple data products
- **Provides SWIM users access to information** without directly connecting to another system
- **Provides enterprise security** for incoming and outgoing data
- **Establishes Enterprise Help Desk** for SWIM operational consumer calls
- faa.gov/air_traffic/technology/swim/

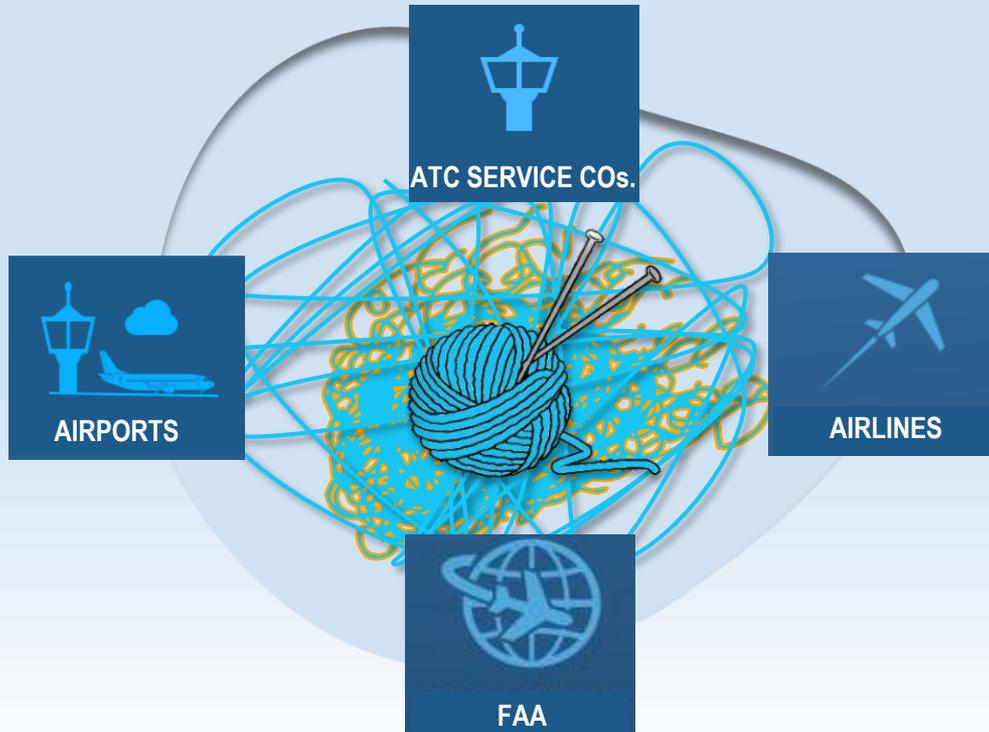
ATWEC

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What Was Life Like Before SWIM?

Before SWIM



*Connecting two systems before SWIM was much like a messy ball of yarn:
Difficult to connect, inefficient, and confusing*

SWIM Today



SWIM By the Numbers



80 unique information services available



240 users consuming **3,000+** services



4.3+ Terabytes consumed per day

- FLIGHT/FLOW**: Represented by a globe with an airplane path.
- AERONAUTICAL**: Represented by an airplane icon.
- SURVEILLANCE**: Represented by a radar target icon.
- WEATHER**: Represented by a sun and cloud icon.

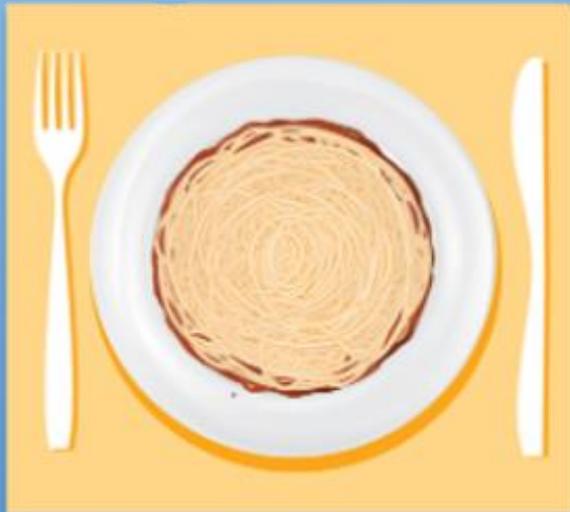
- jetBlue AIRWAYS**
- Alaska AIRLINES**
- Southwest**
- UNITED**
- American Airlines**
- DELTA**
- FlightAware**
- FedEx Express**
- ups**
- Microsoft**
- Google**
- UBER Elevate**



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Evolution to ATM Business Sharing



Monolithic

PAST

Tightly-coupled systems presented many challenges to integrate and support expanding need for an information driven enterprise



Traditional SOA

PRESENT

Loosely-coupling systems simplified integration and distribution but still present challenges as service updates can impact users.



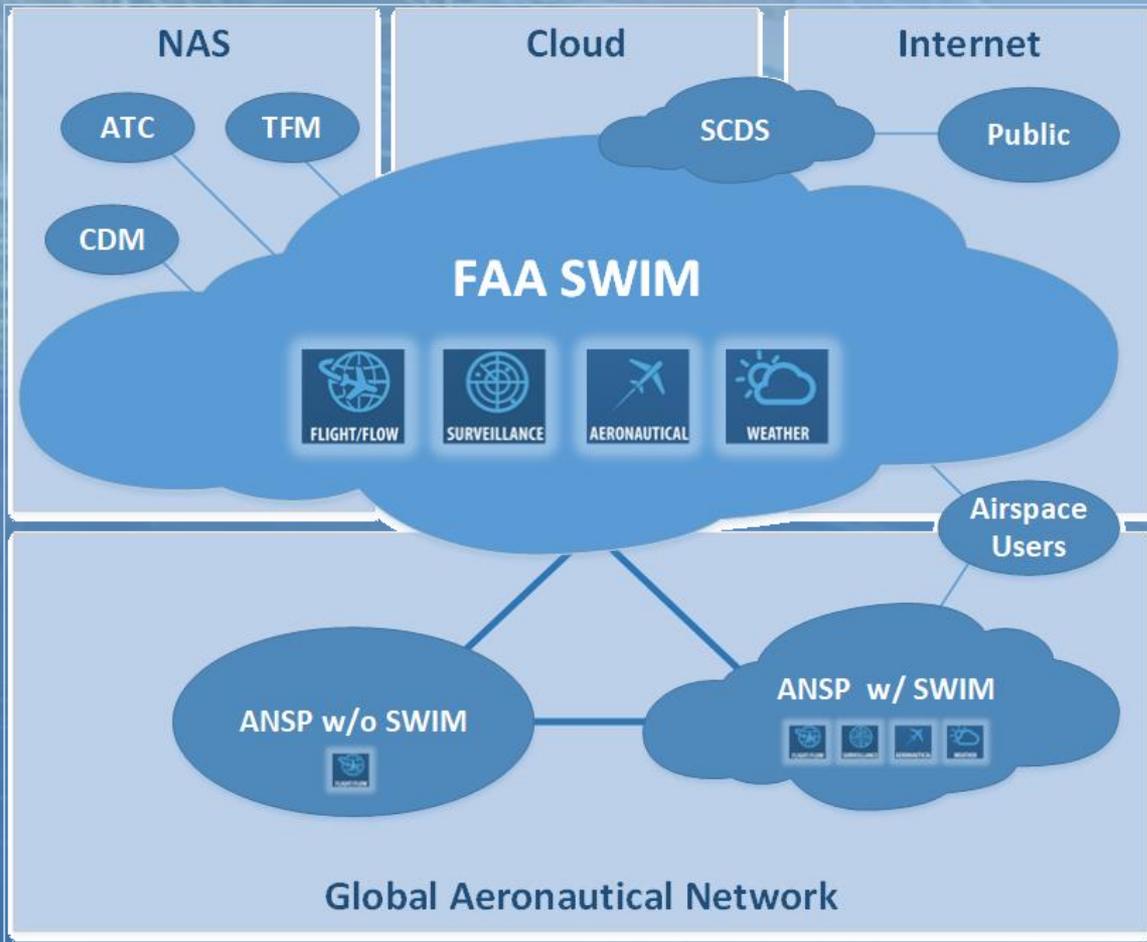
Potential SWIM

FUTURE

De-coupling systems using microservices simplifies service management and minimizes user impacts.

Image Source: <http://bit.ly/2kdI3U0>

An Information-Driven Global Enterprise



An Approach to the Future



**Data
Science**



**Post Ops
Analysis**



Research

What is SWIFT?

The SWIM Industry-FAA Team (SWIFT) is a partnership with industry to bring together operations, IT architects, operations research, policy leaders, software engineers and business analysts to leverage SWIM and NAS Information Services. It is a communications platform that enables airspace users to collaborate in integrating near real-time NAS Information Services over SWIM with legacy systems and new technology, delivering tangible operational improvements.

https://www.faa.gov/air_traffic/technology/swim/swift/

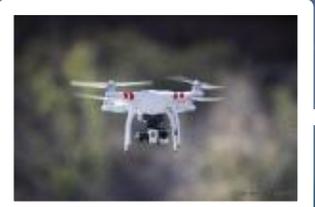


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Future of Information Services

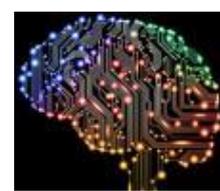
Emerging Aviation Technologies and Industries



Art of the Possible



Artificial Intelligence



Advanced Services

Data Integrity & Security

Weather, Aeronautical Flight

Time-based geo-filtering

SWIM

Cloud Distribution

Identity Access Management



FLIGHT/FLOW



AERONAUTICAL



SURVEILLANCE



WEATHER

**Aviation is
driven by SWIM.**

**The World is
driven by data.**

Any Questions?

