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Advancing
Free Trade for Asia-Pacific
Prosperity

FAA System Wide Information Management (SWIM)

TPTWG45 – AEG, Agenda Item 5.2

Presented by
United States



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WHAT IS SWIM?

System Wide Information Management (SWIM) is the infrastructure that allows members of the Aviation Community to access the information need to facilitate an innovative and efficiently run National Airspace System (NAS).

What is SWIM doing for the Aviation community?

SWIM makes it possible to have access to real-time, relevant aeronautical, flight and weather information so users (both within, and outside the NAS) can respond faster, more accurately, creating collaboration opportunities with the industry.



What was life like before SWIM?



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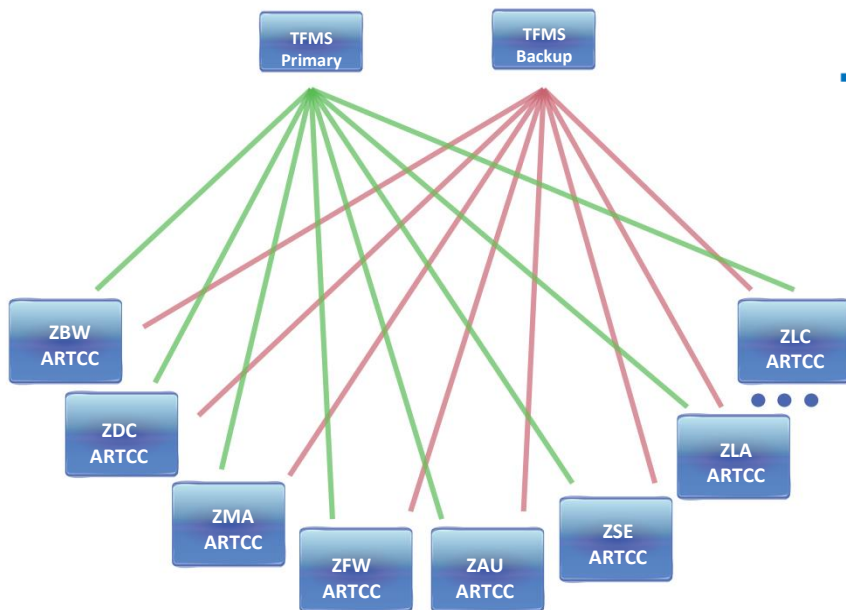
- In the past, the state of the art for connecting two systems required a **fixed network connection and custom, point-to-point, application-level data interfaces**. Current National Airspace System (NAS) operations depend upon these legacy information systems with some systems entirely unconnected.
- SWIM is a technology enabler that provides the IT standards, infrastructure and governance necessary for NAS systems **to share information, improve interoperability, and reuse information and services**.

SWIM Benefits



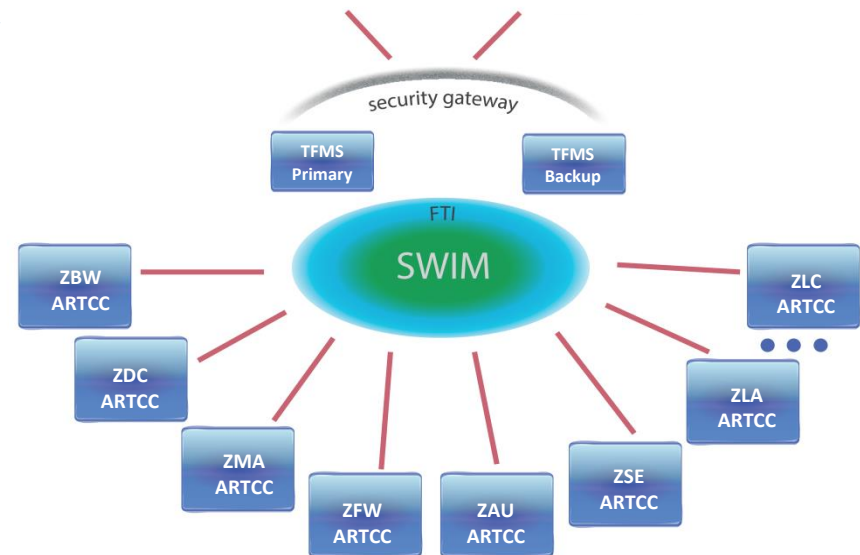
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- Provide **access to information**
- Eliminate **point-point connections**
- Provide **enterprise security services**
- Provide **enterprise service monitoring**



Before SWIM:

Point-to-point connections



With SWIM:

Data Exchange
(Published once, consumed by many)



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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

U.S. NextGen Information Sharing Architecture



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NextGen Applications

← **NextGen Applications:**
SFDPS, STDDS, ITWS, AIM, etc.



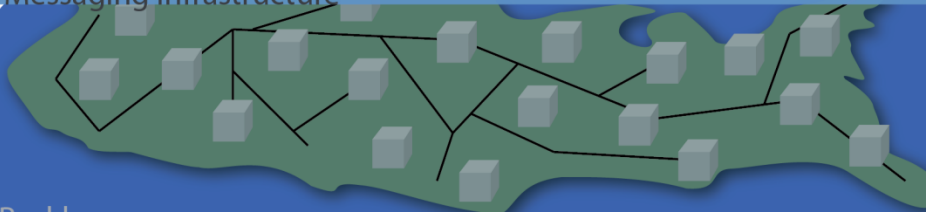
Standards for Data Exchange

← **Standards for Data Exchange:**
Data Standards & Harmonization



SWIM Messaging Infrastructure

← **SWIM Messaging Infrastructure:**
SWIM Core Services



FTI IP Backbone

← **FTI IP Backbone:**
FTI Operational IP network provides secure transport

SWIM Services By Phase of Flight



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Departure

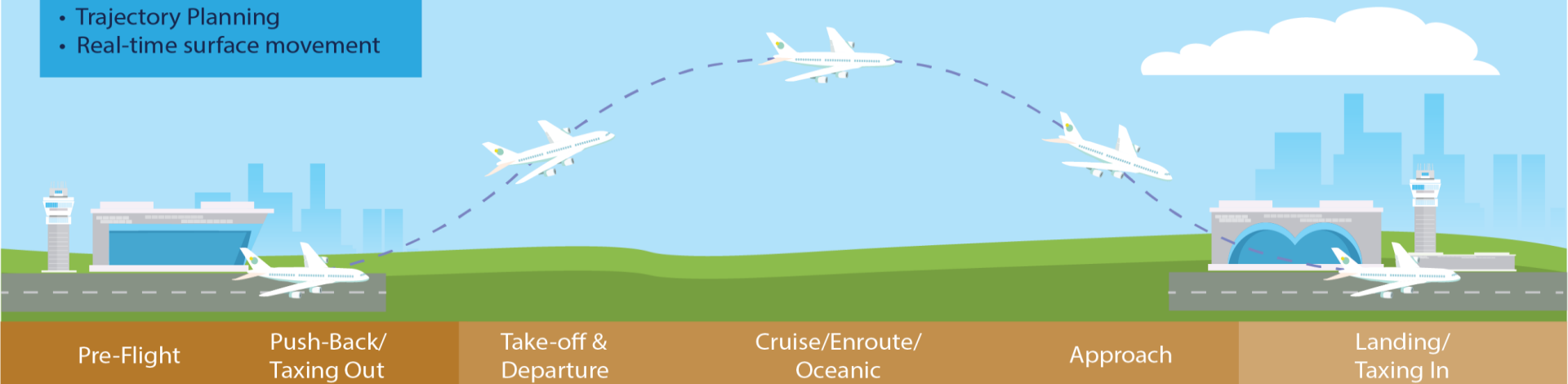
- Pre-Departure Flight-Planning
- Current and forecast weather information
- NOTAMS
- Flight Restrictions
- Flow Information
- Trajectory Planning
- Real-time surface movement

En-Route

- Flight re-route information
- Current and forecast weather information
- Updates to NOTAMS
- Flight restriction changes
- Flow information changes

Arrival

- Arrival metering information
- Real-time surface movement
- Airport surface movement
- Current weather information



System Wide Information Management

STDDS FNS SFDPS ITWS WMSCR

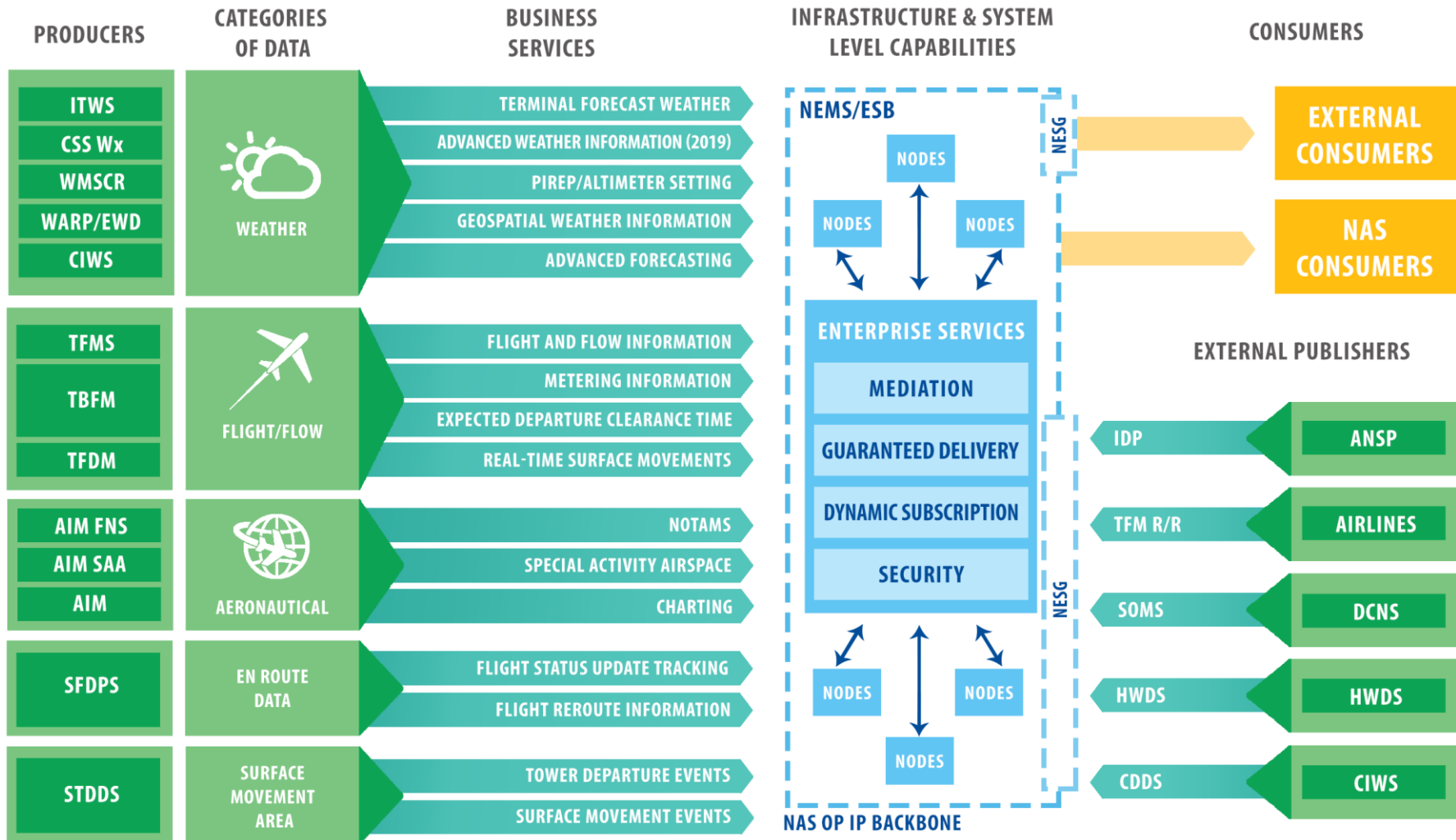
TBFM TFMS SFDPS ITWS FNS

STDDS SFDPS ITWS

SWIM Business Service



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SWIM Services



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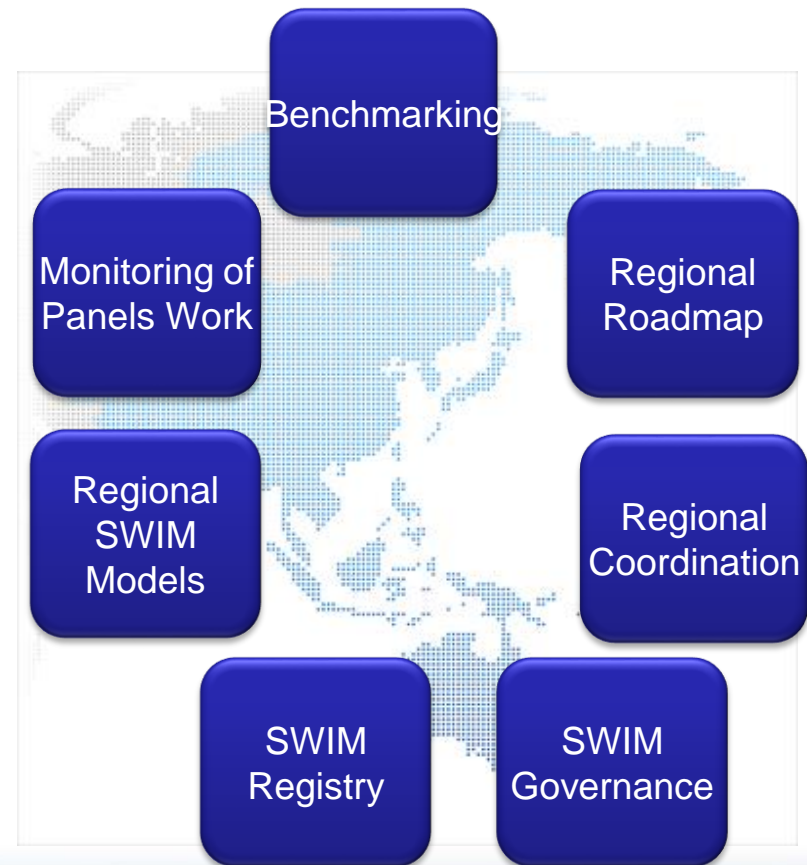
- **Traffic Flow Management Service (TFMS)**
 - TFMS Flight Information
 - TFMS Flow Information
 - TFMS Status
- **Federal NOTAM System (FNS)**
- **Integrated Terminal Weather Service (ITWS)**
- **SWIM Terminal Data Distribution System (STDDS)**
 - Surface Movement Event Service (SMES)
 - Airport Data Service (ADPS)
 - Infrastructure System Monitor and Control (ISMC)
 - Terminal Automation Information (TAIS)
- **Time Based Flow Management (TBFM)**
- **SWIM En Route Flight Data Publication Service (SFDPS)**

SWIM International Collaboration



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- ICAO APAC Task Force
 - Implement SWIM in APAC Region
 - Requirement Coordination with applications/system owners
 - Regional structure to manage new information exchange over SWIM Services
 - Dual operations to support both legacy services and new services
 - Timeframe: now → 2020



SWIM International Collaboration



- Global Standards Development
 - Information management standards and best practices
 - TFMS Release 13 (FIXM 4.0 and AIXM 5.1)
 - STDDS FIXM 4.1 in progress
 - SFDPS FIXM 4.1 in progress
- NAS Service Registry Repository (NSRR) 3.0
 - Registry Interchange Module (RIM)
 - Web service specification for service metadata exchange

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