System Wide Information Management (SWIM)

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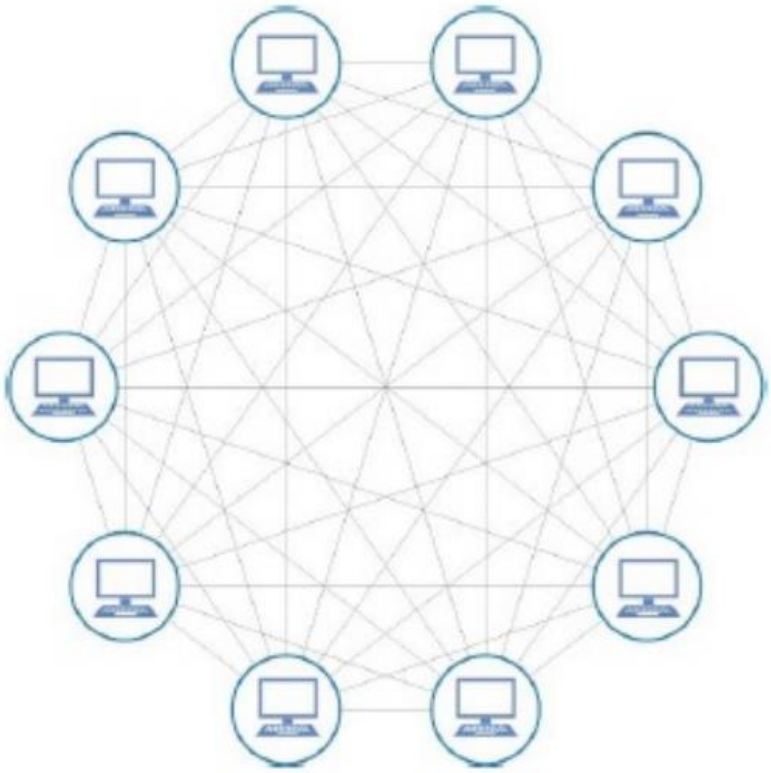
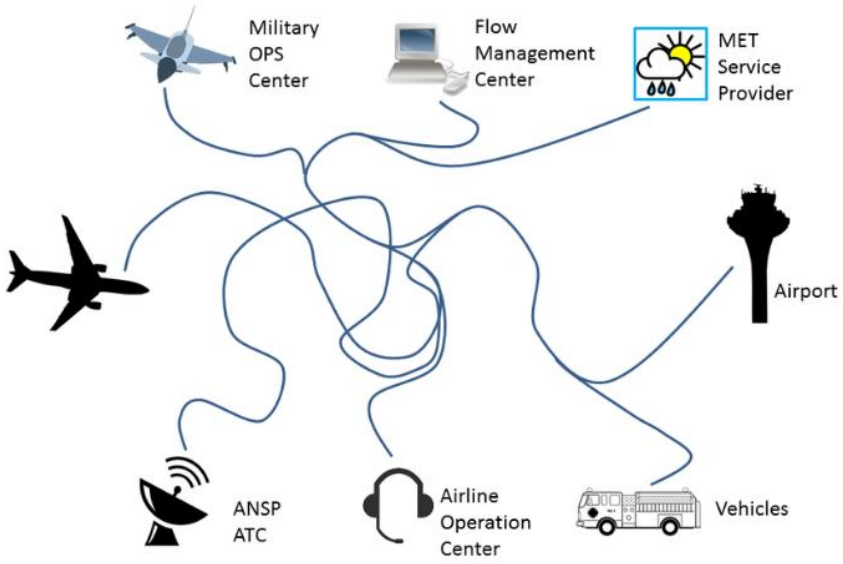
Know the World, Show the Way…from Seabed to Space

What is SWIM?

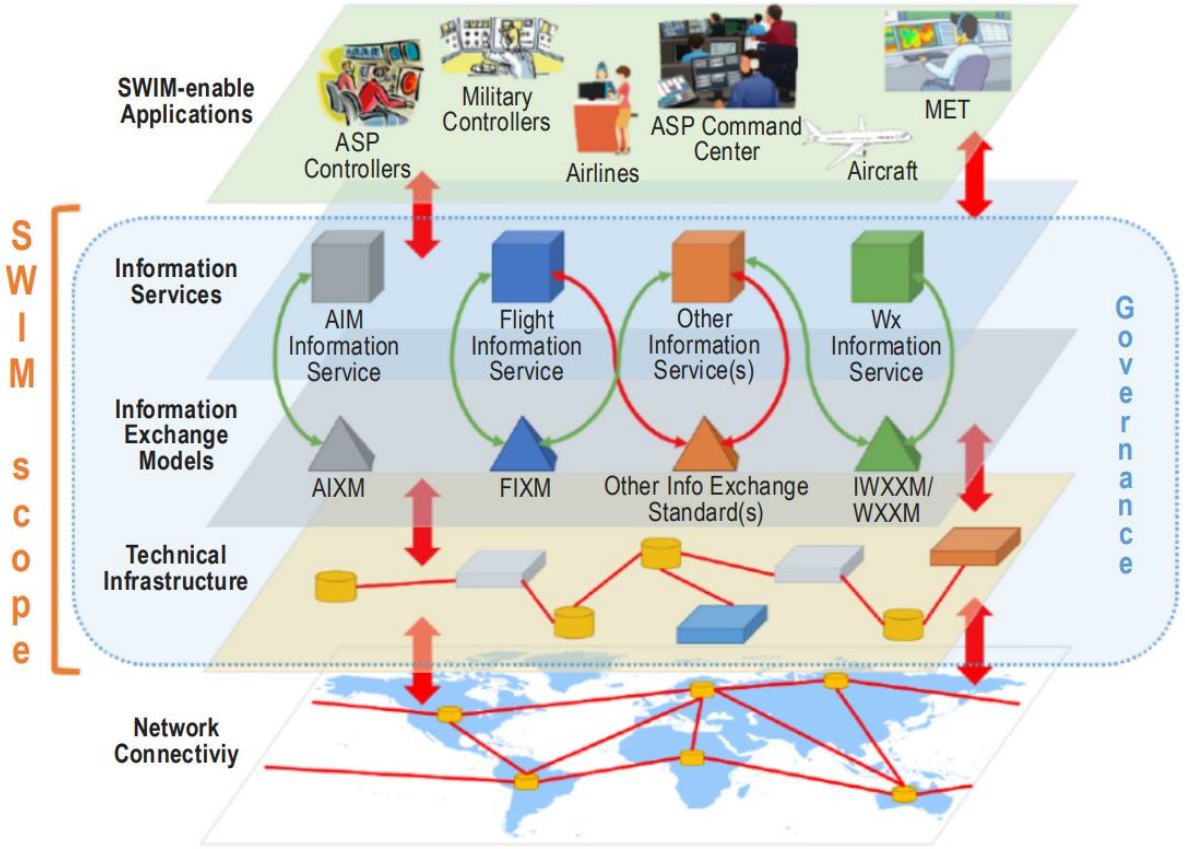
SWIM is a digital, standards-based, and secure information-sharing framework that connects Air Navigation Service Providers (ANSPs), users, and systems.

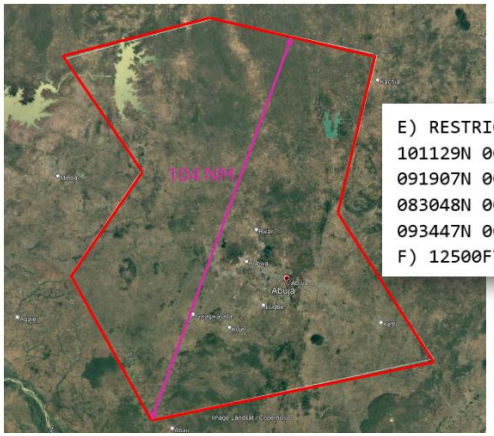
Aviation Communication before SWIM





SWIM Global Interoperability Framework



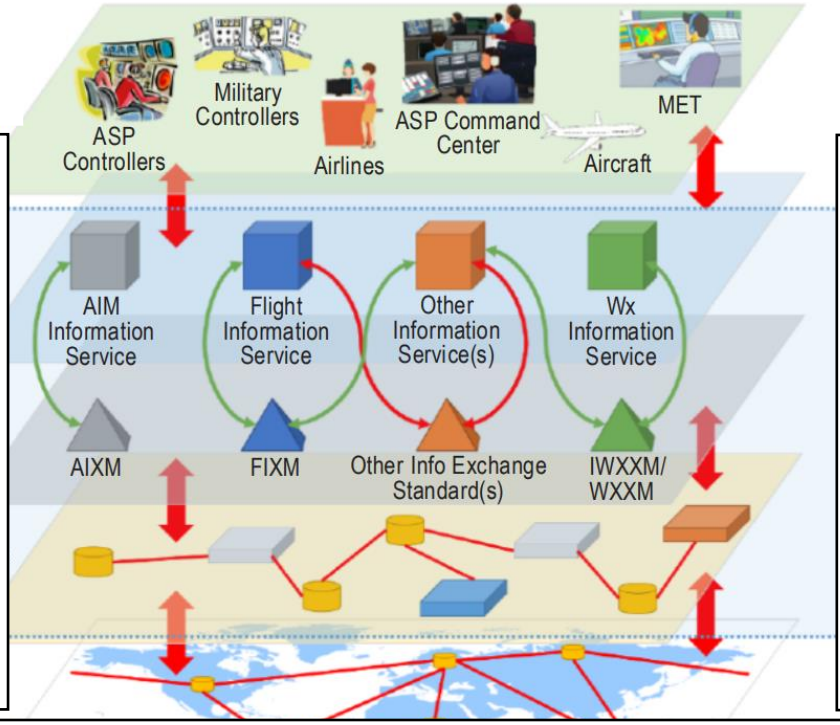


E) RESTRICTED AIRSPACE WITHIN
101129N 0071626E – 095839N 0075751E –
091907N 0074438E – 084022N 0080552E –
083048N 0065207E – 090925N 0063426E –
093447N 0065504E – 100430N 0063749E
F) 12500FT AMSL G) FL180

Information Exchange Models available on SWIM

AIXM

- Standard for representing and exchanging aeronautical information
- Used for airspace structures, navigation aids, airport facilities, and flight procedures
- Transition for current AIM messages e.g. NOTAM etc



IWXXM

- Standard for representing and exchanging weather information
- Designed to support aviation meteorology
- Used for weather observations, forecasts, and warnings
- Enables real-time information between aviation stakeholders

FIXM

- Standard for representing and exchanging flight-related information
- Designed to support flight planning and execution
- Used for flight plans, trajectories and performance data
- Enables real-time information exchange between aviation stakeholders

SWIM Implementation - Compliance

Layer of Framework	Function of Sublayers	Standards, Models, Implementations
SWIM-enabled Applications		ATS, ATFM, Airline Ops
Information Exchange Services	Interface Definition	OGC, WSDL, WADL, WFS, WMS, WCS
Information Exchange Models and Schemas	For aeronautical, MET, and flight information	AIXM, WXXM, IWXXM, FIXM
	Semantic interoperability	OWL, SKOS
SWIM Infrastructure	Enterprise Service Management	JMX, SNMP
	Policy	WS-Policy Standards
	Reliability	WS-RM & WS-RM Policy
	Security	WS-Security & SSL
	Data Representation	XML, XSD, GML
	Messaging	SOAP, JMS
	Transport	HTTP, JMS, MQ
	Service Registry	UDDI, SWIM Service Registry Specification, IALA G1128
Network Connectivity	Secure Network Connectivity	IPv4, IPv6
	Naming and Addressing	DNS

SWIM Implementation – Core Services

SWIM Core Service	Core Service Functions
Interface Management	Service Exposure
	Service Discovery
	Metadata Management
Messaging	Publish / Subscribe
	Request / Response
	Reliable Messaging
	Message Routing
	Mediation
	Message Transport
Security Services	Message Confidentiality
	Message Integrity
	Transport-level protections
	Identity Management
	Data Access Management
	Security Policy Management
	Security Policy Enforcement
	Security Monitoring
	Security Auditing
Enterprise Service Management	Configuration Management
	Event and Performance Management
	Policy Management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