International Civil Aviation Organization

The Ninth Meeting of System Wide Information Management Task Force (SWIM TF/9)

Bangkok, Thailand, 14 – 17 May 2024

Agenda Item 5: Update on the assign task by lead contributor, including progress report and issues.
b) SWIM Infrastructure
Task 2: Regional SWIM Infrastructure
e) Information Service
Task 6: Information Service

LEVERAGING DNS FOR A ROBUST SWIM IMPLEMENTATION IN ASIA PACIFIC

(Presented by INDONESIA)

SUMMARY

This paper explores the critical role of Domain Name System (DNS) in facilitating seamless information exchange and data sharing in order to obtain a robust and efficient DNS within the SWIM ecosystem.

1. INTRODUCTION

1.1 The International Civil Aviation Organization's (ICAO) System-Wide Information Management (SWIM) program aims to revolutionize the distribution of aeronautical information by establishing a standardized framework for information exchange among aviation stakeholders.

1.2 A critical component of SWIM is the designation of Service Addresses (SAs) that uniquely identify information providers and consumers within the network. The Domain Name System (DNS) plays a pivotal role in resolving these SAs into their corresponding Internet Protocol (IP) addresses, ensuring efficient data routing and access.

2. DISCUSSION

2.1 Impact of DNS on SWIM Functionality:

2.1.1 Human-readable Addresses:
By leveraging DNS, service end-point addresses can be expressed in a human-readable format using SAs instead of complex IP addresses. This simplifies user interaction and reduces the risk of errors.

2.1.2 Intuitive Identification:
SAs can be structured to be inherently informative, incorporating elements that convey the type of service or organization they represent. For example, an SA like "airnav.ansp.id" clearly indicates it pertains to the subject (airnav) is an Air Navigation Service Provider (ANSP) of Indonesia. Additionally, within the SA we can further specify the service

provided. For instance, "airnav.ansp.id/flights" suggests that "airnav" is an ANSP of Indonesia providing flight data on that specific address. This intuitive structure facilitates easier service discovery for users.

2.1.3 Domain-based Classification:
DNS allows for the use of domain naming conventions to categorize service addresses. This enables users and systems to quickly identify the type of service based on the domain name (e.g., ".atfm.id" for Air Traffic Flow Management (ATFM) services, ".met.id" for meteorological-related services, ".aim.id" for AIM related services).

2.1.4 Dynamic Updates:
DNS facilitates the dynamic update of service end-point addresses without requiring changes to all consumer or subscriber systems. This simplifies service maintenance and avoids potential disruptions caused by outdated address information.

3. ACTION BY THE MEETING

3.1 The meeting is invited to:

a) note the information contained in this paper; and

b) discuss any relevant matter as appropriate.

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