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**Service Identification Header of Service Aware Network**

## **Abstract**

As the cloud and computing migrates to edges further away from the traditional centered cloud, the services residing at the distributed cloud start to be delivered in such a ubiquitous and dynamic way. That it is challenging to the ongoing routing and interconnecting scheme under which host address is the global networking identification. This draft proposes a service identification which is designed to be treated both as a service routable ID and an interface to the service requirements as well as service-associated cloud resources. Service Aware Network header is illustrated and specified.

## **Status of This Memo**

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## Table of Contents

- [1. Introduction](#)
- [2. Requirements Language](#)
- [3. Terminology](#)
- [4. Design principles and key elements of SAN identification](#)
- [5. Structure of SAN header](#)
- [6. Security Considerations](#)
- [7. Acknowledgements](#)
- [8. IANA Considerations](#)
- [9. Normative References](#)
- [Authors' Addresses](#)

## 1. Introduction

Unlike routing and forwarding scheme which is only involved bearer network, the service delivered from cloud needs delicate coordination among the terminal, bearer network and cloud. In order to improve the end-to-end capability of the network, service aware network framework is proposed [[I-D.huang-service-aware-network-framework](#)]. The SAN identification designed in the SAN reference framework, as an interface between clients and services, as well as between services and the network and cloud, solves the challenges that existing identification systems cannot simply integrate services through the endpoints, network and the cloud, and can effectively promote the evolution of service requirements.

This proposal introduces an SAN header with a simple semantics service identification as an index in the network layer to enable the network to be highly effectively aware of the requirements of various cloud services. This service identification is designed to purporting to the fundamental and common services for which the service qualities should be guaranteed by both delicate networking and computing resources.

## 2. Requirements Language

The key words "MUST", "MUST NOT", "REQUIRED", "SHALL", "SHALL NOT", "SHOULD", "SHOULD NOT", "RECOMMENDED", "NOT RECOMMENDED", "MAY", and "OPTIONAL" in this document are to be interpreted as described in BCP 14 [[RFC2119](#)] [[RFC8174](#)] when, and only when, they appear in all capitals, as shown here.

### 3. Terminology

\*SAN: Service Aware Network.

\*SAN ID: Service Aware Network Identification, an identification designed to indicate the fundamental and common service types.

\*SAN header: Encapsulation format of the SAN ID.

### 4. Design principles and key elements of SAN identification

The SAN identification has global semantics through the terminal, network and cloud, and seamlessly connects and integrates the service, network and cloud system.

SAN identification is only applicable to fundamental and common service types. The service identification only covers modular service types which are particularly sensitive to both networking and computing resources. When a service has multiple service instances, there is only one SAN identification used to indicate the general service type.

SAN identification is only applicable to service types that have higher than "best effort" and "general computing processing" for computing network resources, that is to provides unified computing network services at layer L3.

SAN identification support type aggregation. The aggregate identification structure is beneficial to improve the efficiency of indexing and table query.

### 5. Structure of SAN header

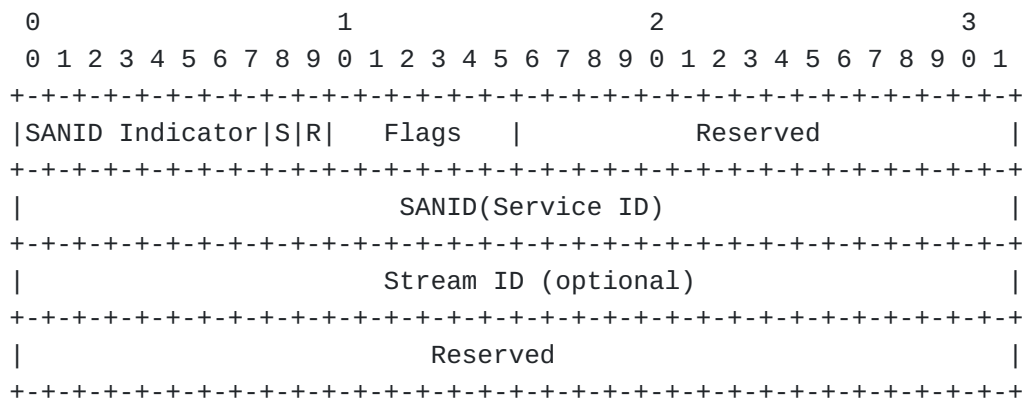


Figure 1: Structure of SAN header

SANID Indicator: indicates SAN ID metadata including length type of SAN ID.

Flags: 8-bit flags field. The most significant bit is defined in this document.

S: indicates the presence of stream ID.

R: indicates the presence of the reserved field.

the rest will be defined in the future version of this draft.

Service ID: fixed length field. Service ID identifies a fundamental and common service, the recommended SAN ID length is 32 bits, 64 bits, 128 bits or other lengths compatible with the common chip processing scheme. Service ID might consist of Hierarchical type identification (HID) and sub-service identification (Sub-SID). HID could represent the aggregation type of the service identification. Based on the HID, SAN can identify the category of application/service requests initiated by the terminal, and recognize that service sessions belonging to the same category of application/service requests. Sub service identification (Sub-SID), combines with HID to represent a globally unique service semantic identification, and apply to fundamental and common generic service.

Stream ID: Fixed length and optional field. The terminal generates a unique Stream ID upon each service request, indicating the specific service stream identified both with the terminal and the service. The life cycle of Stream ID terminates when the associated service request by the specific terminal ends.

Reserved: optional and for future extension.

## **6. Security Considerations**

TBA

## **7. Acknowledgements**

TBA

## **8. IANA Considerations**

TBA

## **9. Normative References**

[I-D.huang-service-aware-network-framework] Huang, D. and B. Tan, "Service Aware Network Framework", Work in Progress, Internet-Draft, draft-huang-service-aware-network-

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