Service Affinity Solution for TCP based Application in Anycast Situation

[draft-wang-tcpm-tcp-service-affinity-option]

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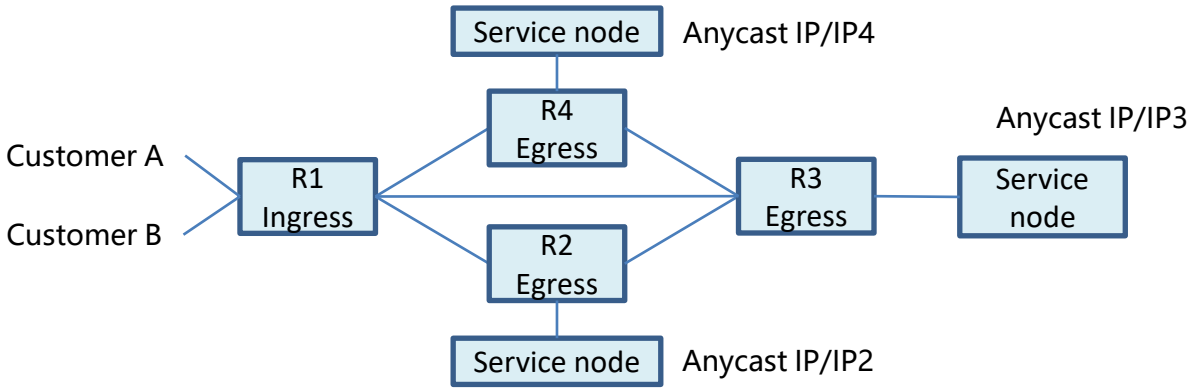
IETF 115@London, Nov. 2022

- Background and motivation of this draft
- Proposed Solutions
- Further Action

Background and motivation of this draft

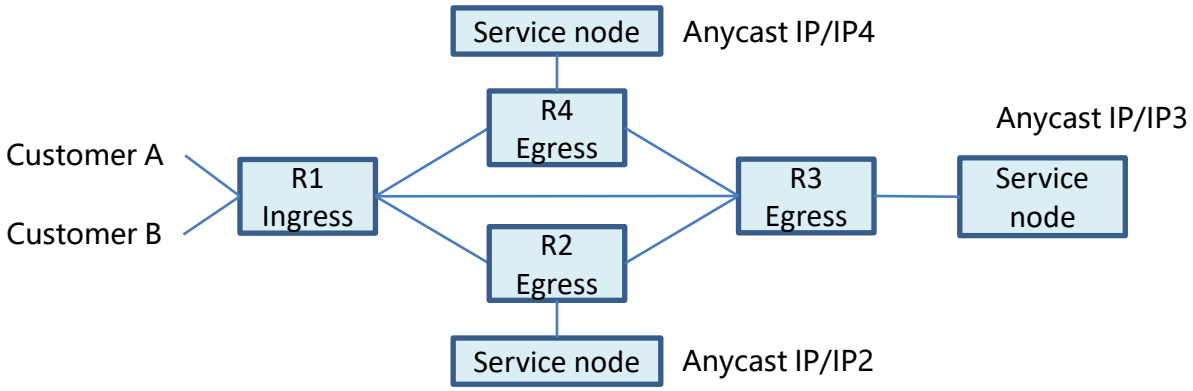


Anycast Services Scheduling scenario

- Service nodes provide the same service function may be deployed different resource pools, and use the same anycast IP address.
- When customer A accesses to the service:
  - Customer A sends packet to R1
  - R1 determine the optimal service node for customer A based on the network status.

- The network status is constantly changing, different customers may be scheduled to different service nodes. For customers who have established connections, the service node providing services must remain unchanged.

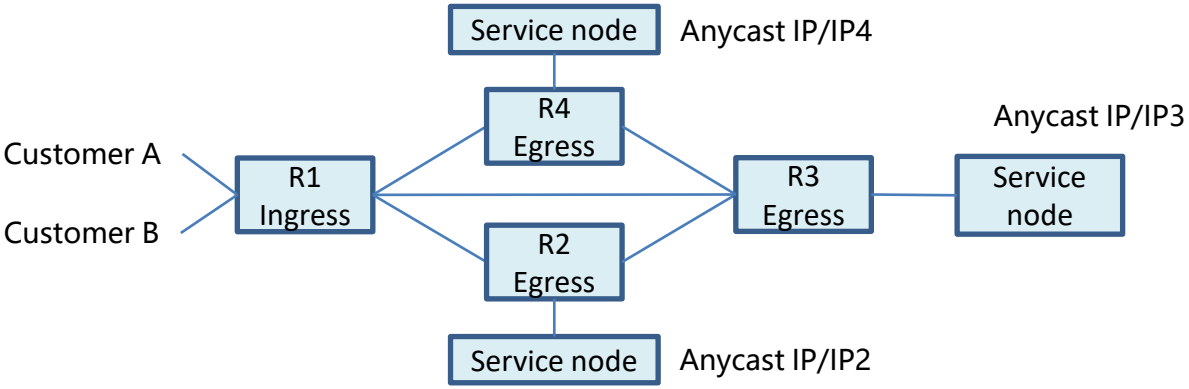
Background and motivation of this draft



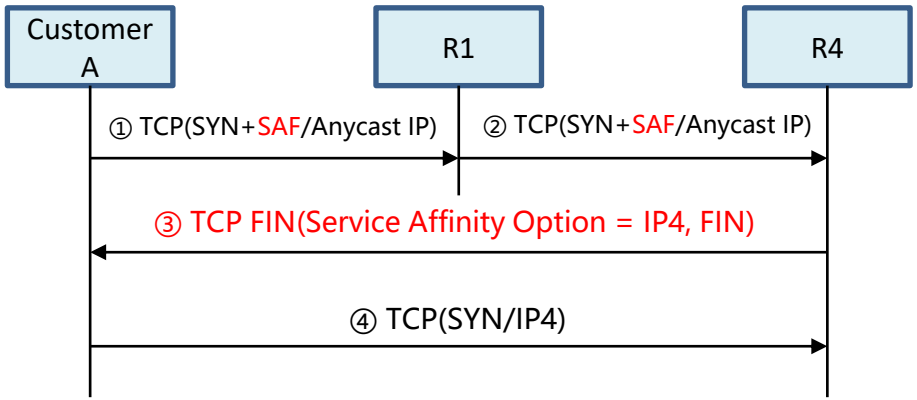
Anycast Services Scheduling scenario

- The current solutions need to maintain the customer-based connection status table in ingress and egress routers.
- We propose a solution for the service affinity between client and server based on one newly defined TCP Option, which can realize the comprehensive scheduling based on real-time network status. This solution eliminates the need to maintain customer-based connection status tables for network devices, and improves the flexibility and scalability of large-scale deployment of anycast services scheduling.

Proposed Solution



Anycast Services Scheduling scenario



Procedures for the service affinity solution

A new Flag (“SAF”) is requested for identify the sender supports TCP Service Affinity Option.

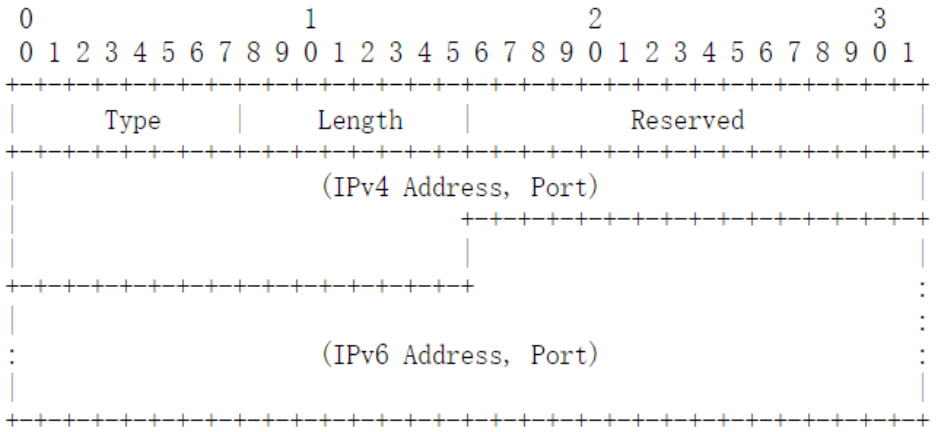
① Customer A accesses to the service.

② R1 schedules the request and determines service node behind R4 will provide the service.

③ Service node returns its IP address and port information

④ Customer A re-establishes the connect to service node behind R4.

Proposed Solution



Encoding of TCP Option for service affinity

- **Type (1 octet):** identifies the newly defined TCP Option, which is allocated by IANA.
- **Length (1 octet):** identifies the length of the TCP Option.
- **(IPv4 Address, Port) (6 octets):** identifies the IPv4 address and port owned by the service node that provides the service.
- **(IPv6 Address, Port) (18 octets):** identifies the IPv6 address and port owned by the service node that provides the service.

This Option is carried in the TCP FIN packet sending by the service node, and the address carried must be the address owned by the service node. After receiving the TCP FIN packet, if this TCP Option is included in the packet, the customer will establish the connection to the address specified in this Option.

Further Action

- Comments?

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