Architecture Discussion on SRv6 Mobile User plane

draft-kohno-dmm-srv6mob-arch-03

8 March 2021 IETF110

Miya Kohno, Francois Clad, Pablo Camarillo, Zafar Ali
Agenda

• Objective
• Architecture Discussion
• Exemplification
  • Network Slicing and Edge Computing
  • URLLC and Multi-path
• Conclusion and Next step
Objective

- This document discusses a solution approach and its architectural benefits of common data plane across domains and across layers.

(The current Mobility related discussions in IETF, e.g. Network Slicing, are based on the assumption of the existing domain and the current GTP.)
The limitation of the connection intensive network

- Not optimized for Edge/Distributed Computing
- Not optimized for Any-to-Any Communication
- Policy and Authentication are tied to access methods
- GTP Session Termination -> Scaling Bottleneck
- Perimeter Security

- Not optimized for Any-to-Any Communication
Toward Distributed Mobile Network

- Hetero Access
- LTE
- 5G
- Common Policy/ID
- Zero Trust Security Model
- Multi Cloud
- Data Ubiquitous
- Edge/Distributed Cloud

—as is

—to be
SRv6 – as a common dataplane across domains

By SRv6 net program (RFC8986), it can program anything, including overlay functionalities such as GTP, VXLAN, NSH..

- Simple
- Flat
- Common Data Plane
  - Across domains
  - Overlay/Underlay
  - Interaction with App
- With scaling and flexibility
Edge Computing and Network Slicing

SRv6 Network

Edge DC

UPF Pods

CNF Pods

Edge Computing Pods

Tenant Green

Tenant Yellow

Example: Edge Computing Platform

Pods
URLLC and Multi-path

- 3GPP [TR.23725] Section 6.4 addresses the issues on how to support redundant data transmission

- 3GPP [TR.23793] discusses multi-path and access traffic steering, switch and splitting support

- But these reliability and multi-path convergence should be better not completed within GTP. L4-L7 and Application interaction should be more considered.
Conclusion and Next step

• As mobile architecture entities become more distributed, they have the potential to be integrated as the platforms for edge/distributed computing and new SLA delivery mechanisms, but for that, it is essential to consider this across domains and across layers.

• The current Mobility related discussions in IETF (e.g. Network Slicing) are based on the assumption of the existing domain and the current GTP.

• DMM WG adoption?

SR based network slicing drafts:
• draft-ali-spring-network-slicing-building-blocks-04
• draft-filsfils-spring-srv6-stateless-slice-id-02