

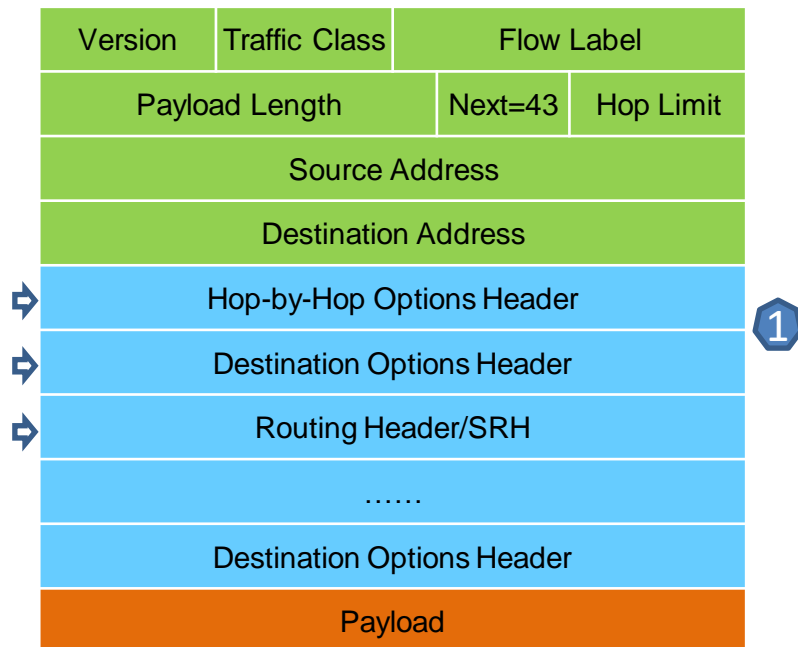
# Application-aware IPv6 Networking (APN6) Encapsulation

<https://tools.ietf.org/html/draft-li-6man-app-aware-ipv6-network-02>

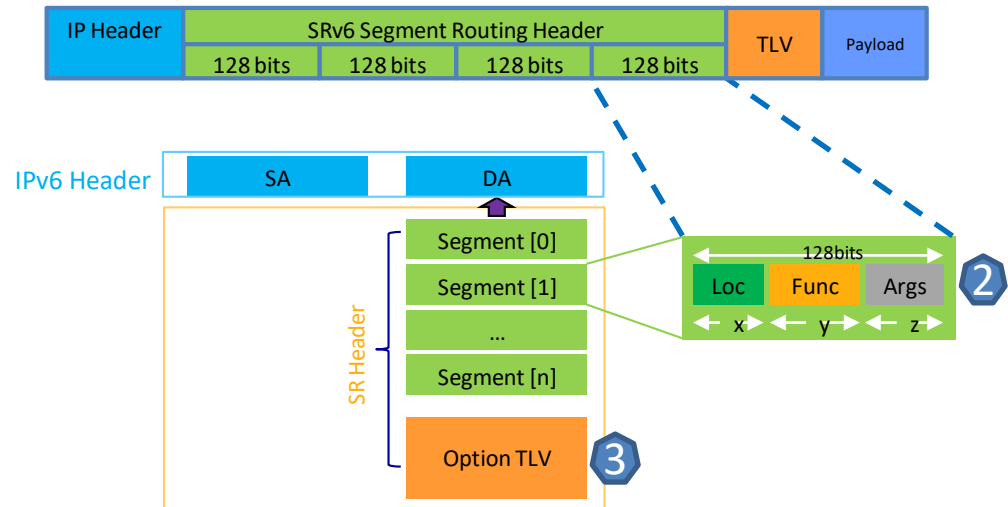
Z. Li, S. Peng - Huawei Technologies  
C. Li, C. Xie - China Telecom  
D. Voyer - Bell Canada  
**X. Li - Tsinghua University**  
P. Liu - China Mobile  
C. Cao - China Unicom  
K. Ebisawa - Toyota Motor Corporation

# APN6 utilizes the future-proof programmability by IPv6

## IPv6 Extension Headers



## SRv6 SRH: Three Levels of Programmable Space

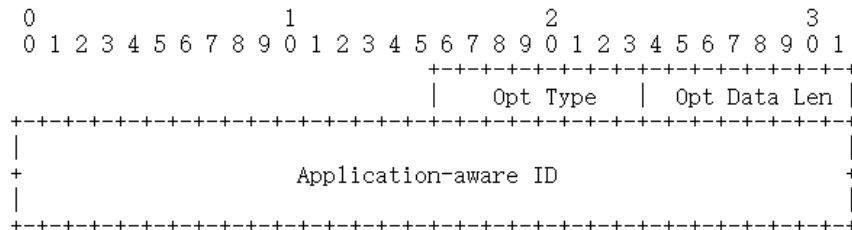


# Application-aware Options

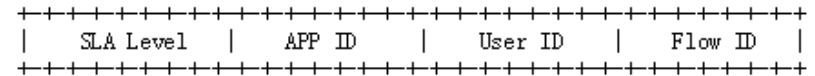
- **Application-aware ID option**
- **Service-Para Option**

# Application-aware ID Option

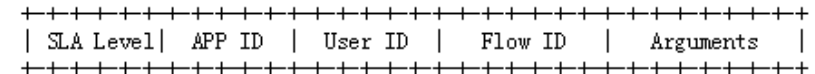
- **Carrying SLA Level, Application ID, User ID, Flow ID, Service Requirements**
- **The length of the APP-aware ID is recommended to be 128bits**



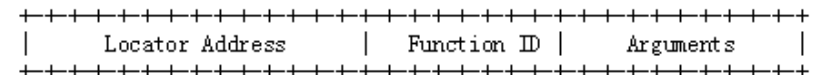
**Structure I:** Any combination of SLA level (e.g. Gold, Silver, Bronze), APP ID, and/or user ID, and/or Flow ID



**Structure II:** Any combination of SLA level (e.g. Gold, Silver, Bronze), APP ID, and/or user ID, and/or Flow ID, plus the arguments which indicating the service requirements of the identified application

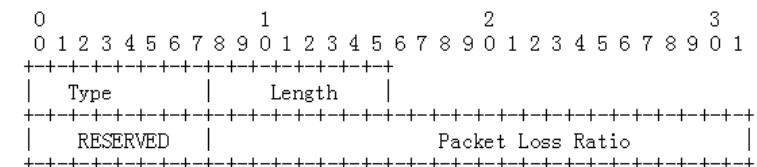
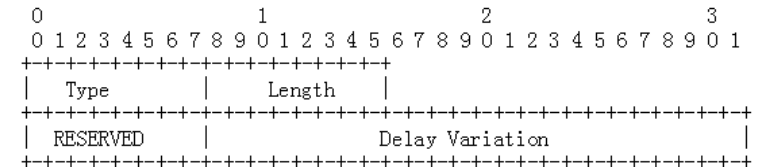
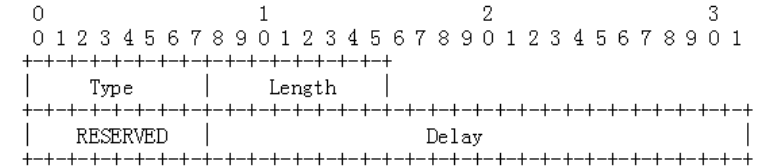
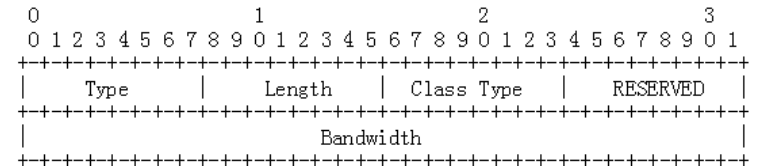
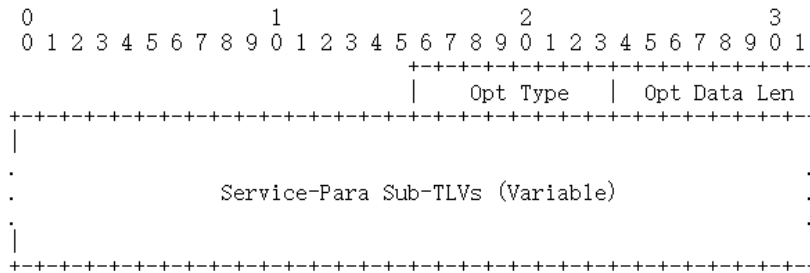


**Structure III:** An SRv6 SID, with its arguments as the information specified in Structure II

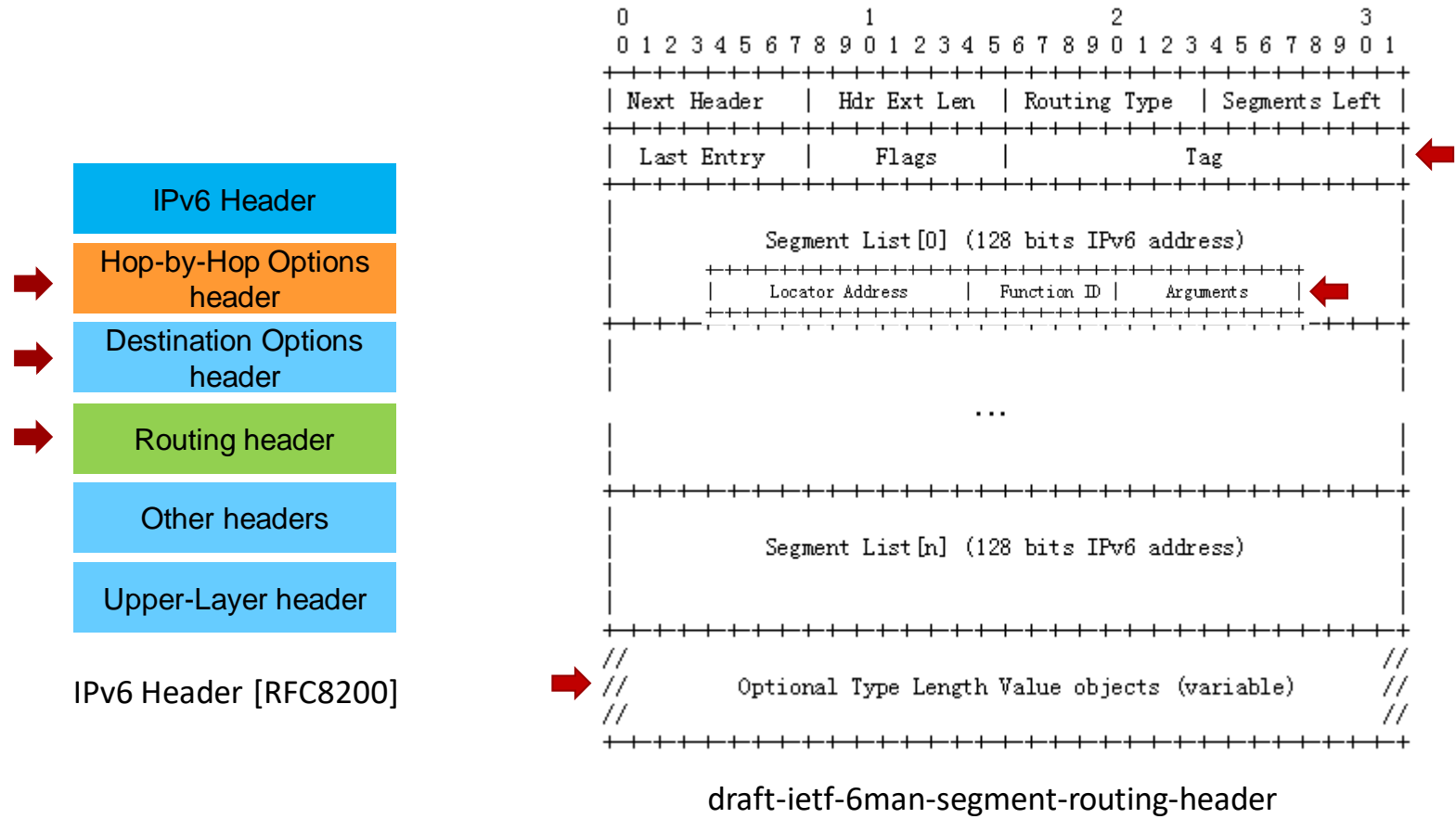


# Service-Para Option

- Carrying the service requirement parameters



# Locations for Application-aware Options



# Prototype

- **Hackathon**

- Demo of the implementation of APN6, based on P4 and BMv2
- Demonstrated the encapsulation of 2 types of Application-aware ID Options and 4 types of Service-Para Sub-TLVs
- Demonstrated the SRv6-based traffic steering according to Application-aware ID Options, and Service-Para Sub-TLVs

- **Interop Tokyo – Finalist**

- SLA guarantee by traffic steering
- APP performance real-time monitoring
- Dynamic Path Optimization
- Application-aware VAS)and SFC

