



Associated Channel over IPv6

draft-yang-rtgwg-ipv6-associated-channel-00

Presenter: Fan Yang

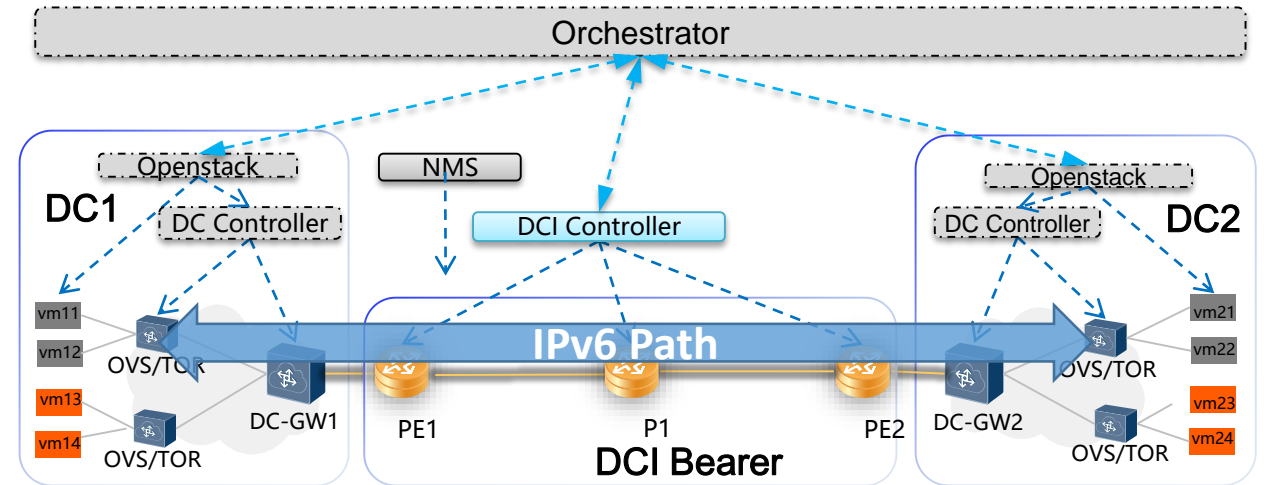
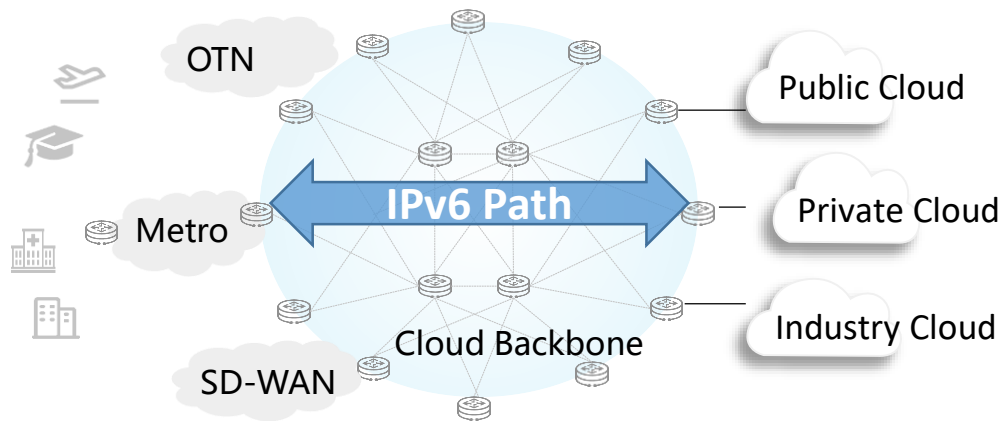
Fan Yang (shirley.yangfan@huawei.com)

Mach Chen (mach.chen@huawei.com)

Tianran Zhou (zhoutianran@huawei.com)

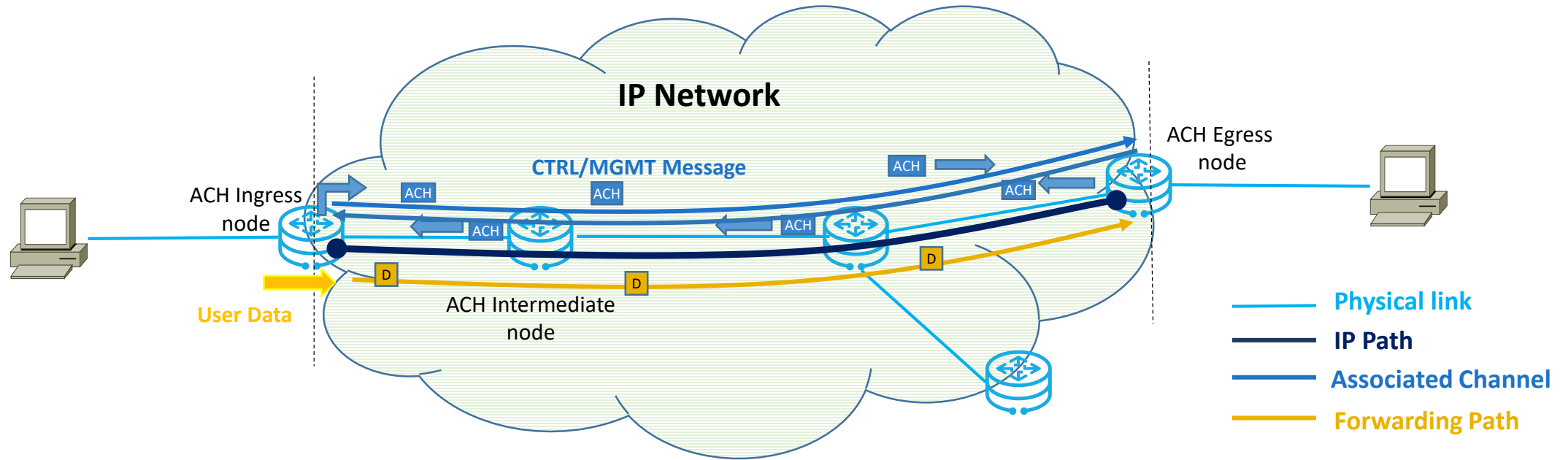
Motivation

IPv6 provides **connectivity** in many use cases, including Cloud-Network convergence, DCI, DCN, mobile backhaul, metro/core networks etc.

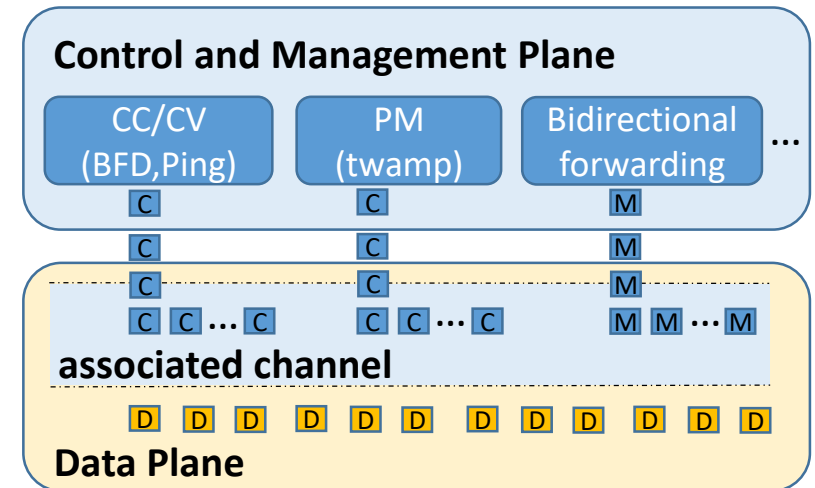


- IP services requires **high quality of SLA guarantee**
- SR over IPv6 provides optimized route for service via routing programming
- Concept of ACH is proposed, identify the service's path, and provide **control and management capabilities**, e.g. OAM, protection switchover, etc., to fulfill the SLA requirement

ACH Architecture



- A control channel
- An associated channel to an IP forwarding path
- Carries messages of control and management protocols
- To provide control and management functions



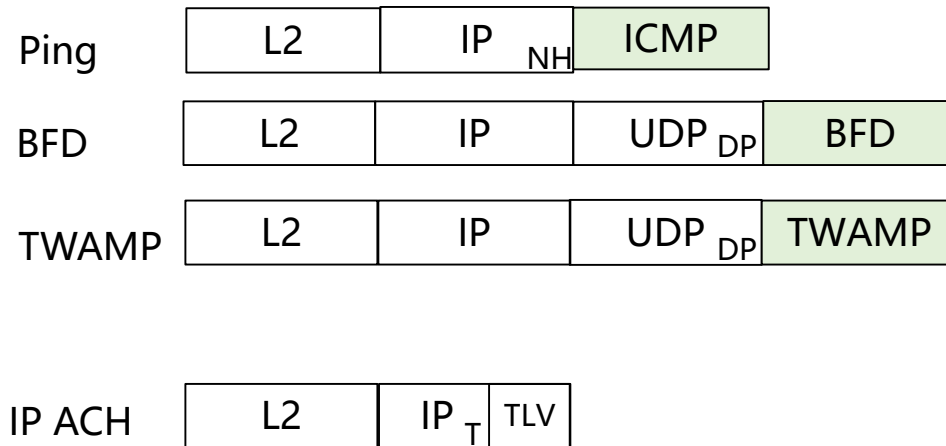
ACH TLV

Type (ACH)	Length	Channel-Type
Associated Channel ID		
Fixed Message (per application)		
zero or more TLVs (optional)		

- A TLV format
- Type: specify the control channel for one specific IP path
- Length: length of value field
- Channel-Type: one specific type of control/management protocol
- Associated Channel ID:
 - path ID of the associated channel
 - map with the path ID of data forwarding path, with which the associated channel is associated
- Carried Message: messages of the specific control/management protocol
- ACH TLV can be encapsulated in IPv6 extension headers (DoH/HbH/SRH) or payload
- Two types of applications: E2E and HbH

Applicability

case 1: unified OAM

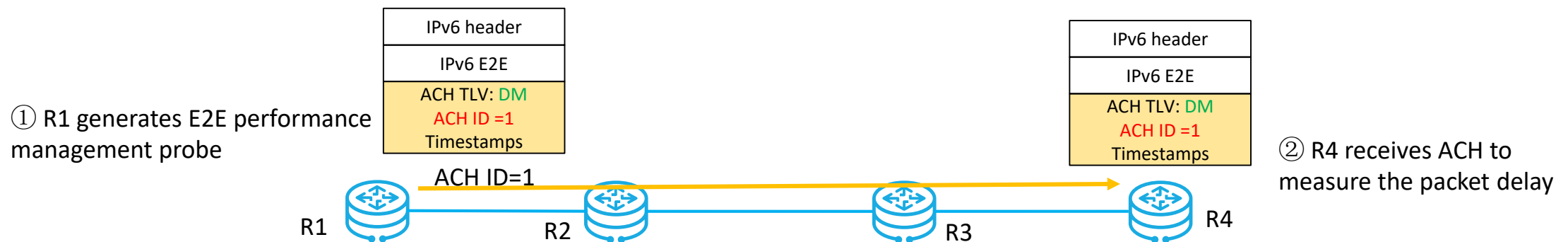


Problem:

- Different protocols fulfill different OAM functions
- Repeated functions, e.g. CV
- Independent session identifiers, e.g. discriminator, 5 tuple
- Deep encapsulation, not friendly to control plane
- Intermediate node is not sensed in E2E session

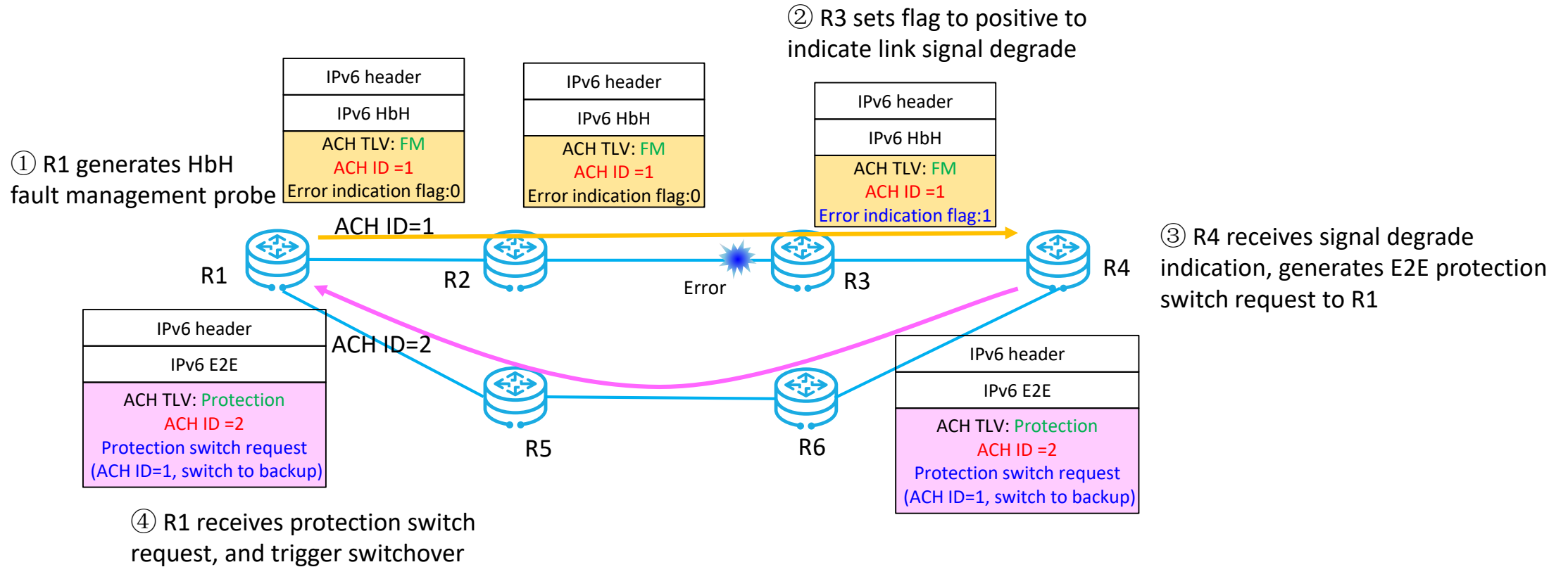
Solution:

- ACH carries different OAM messages in a uniform way
- Reduce the number of OAM protocols and sessions
- Unified session identifier



Applicability

case 2: signal degrade trigger protection



Feedback to comments

- Take reference of MPLS G-ACh
- IPv6 ingress node encapsulates ACH TLV to obey RFC8200
- Design it for IPv6, may focus on SRv6 at the beginning stage
- Options used in IPv6 Extension Header
- ACH is designed for and encapsulated in IP layer

Next Step

1. Refine ACH over IPv6
2. Specifically define ACH over SRv6
3. Specify the applications in different drafts
 - OAM over ACH
 - Linear protection over ACH
 - Others

As always, comments and suggestions are greatly welcome !
Seek for collaborations!

Thanks