Forefront of SRv6
- Introduction -

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About Clarence Filsfils
Inventor & Powerful Practitioner on "Innovation – Productization – Marketing – Deployment"

Clarence Filsfils

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Cisco Fellow
Engineering

Clarence Filsfils, a Cisco Systems Fellow, has a 20-year expertise leading innovation, productization, marketing and deployment for Cisco Systems.

Trusted and respected by key decision makers across major WEB/OTT, SP's and large Enterprises, Clarence enjoys working with these operators to listen to their needs and requirements, and then get things done from product design to deployment.

2002 – Tight SLA (QoS and SPF tuning)
2004 – IGP Fast Convergence (+ FIB Hierarchy)
2006 – BGP Prefix Independent Convergence
2007 – IP FRR, LFA, Remote LFA
2012 – Segment Routing
2014 – SRv6

Low Level Design

Mathematically Proven

Reduce Control Plane

Reduce State

Simplify

About Clarence Filsfils

- Philosophy

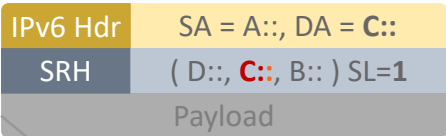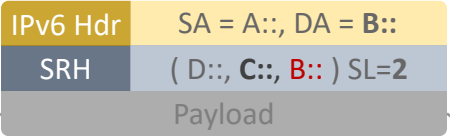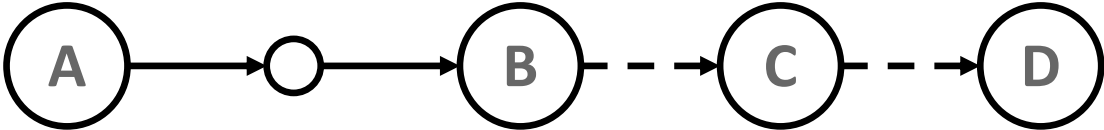"Festina Lente"

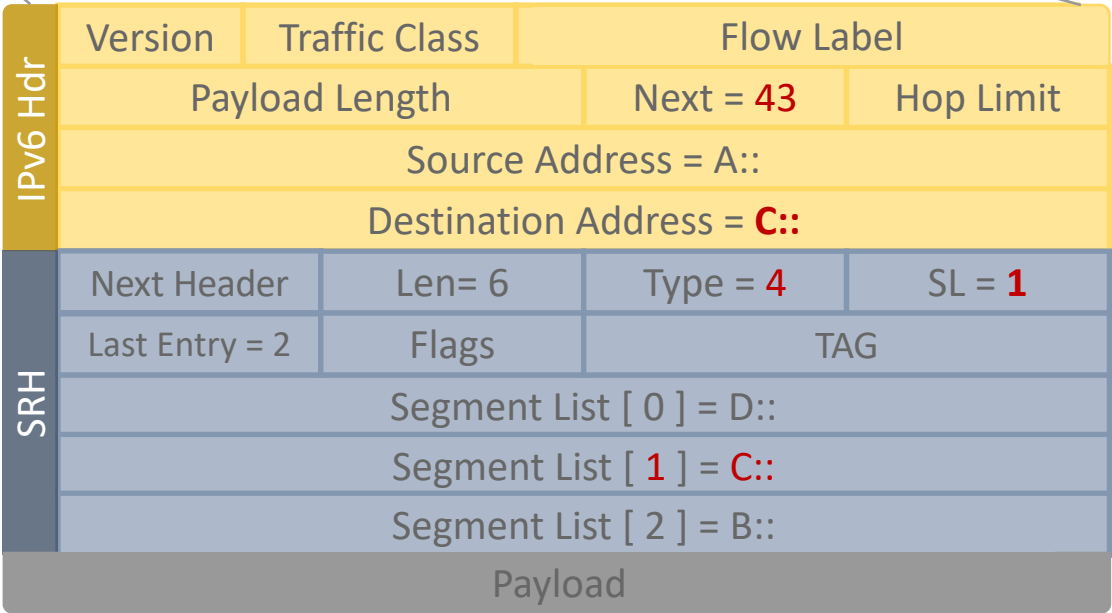
"We start to learn when we observe "

"Calm and Positive"

"Map out the story"

SRv6 - Quick Recap

A → ○ → B ⇢ C ⇢ D

IPv6 Hdr	SA = A::, DA = **B::**
SRH	(D::, **C::**, B::) SL=**2**
	Payload

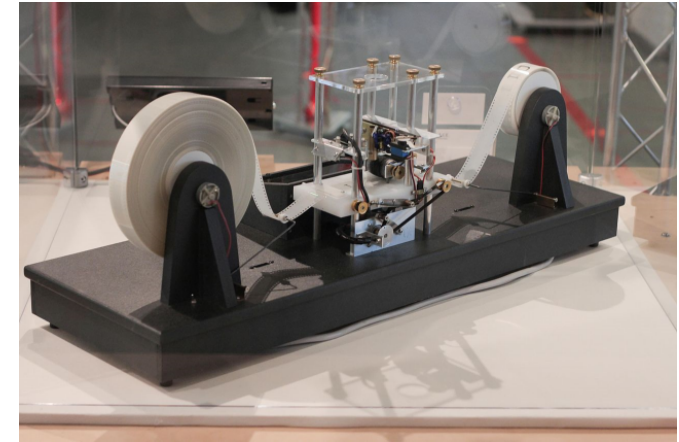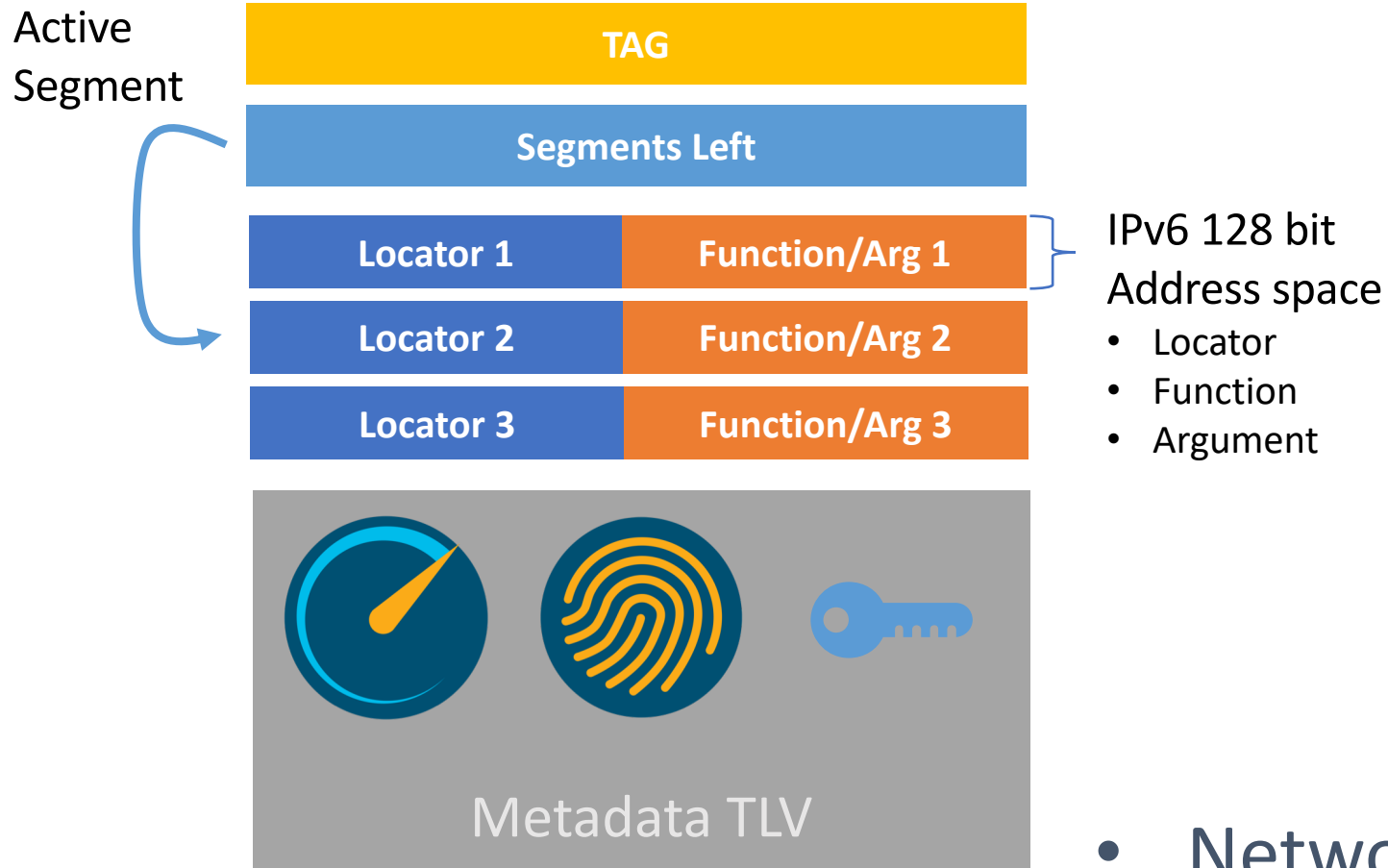| IPv6 Hdr	SA = A::, DA = **C::**
SRH	(D::, **C::**, B::) SL=**1**
	Payload

- **Native IP !!**
  - Segment List is encoded in IPv6 Ext Header (no Shim Layer needed)
  - Non-SR node just does IPv6 forwarding

IPv6 Hdr

Version	Traffic Class	Flow Label	
Payload Length		Next = **43**	Hop Limit
Source Address = A::			
Destination Address = **B::**			

SRH

Next Header	Len= 6	Type = **4**	SL = **2**
Last Entry = 2	Flags	TAG	
Segment List [0] = D::			
Segment List [1] = C::			
Segment List [**2**] = **B::**			
Payload			

IPv6 Hdr

Version	Traffic Class	Flow Label	
Payload Length		Next = **43**	Hop Limit
Source Address = A::			
Destination Address = **C::**			

SRH

Next Header	Len= 6	Type = **4**	SL = **1**
Last Entry = 2	Flags	TAG	
Segment List [0] = D::			
Segment List [**1**] = **C::**			
Segment List [2] = B::			
Payload			

SL : Segment Left

SRv6 Network Programmability

Active Segment

TAG

Segments Left

Locator 1	Function/Arg 1
Locator 2	Function/Arg 2
Locator 3	Function/Arg 3

IPv6 128 bit
Address space
- Locator
- Function
- Argument

Metadata TLV

Turing

- Network as a Computer
- Declarative (not imperative) SDN
- In-Network Computing

Janog43
"Forefront of SRv6"

- Introduction – Miya Kohno

- SRv6 Update – Clarence Filsfils

- SRv6 Mobile user plane Update – Satoru Matsushima

- SRv6 Open Source Implementation Update – Kentaro Ebisawa

- SRv6 Academy Update – Chunghan Lee

- Vendor Update (Huawei) – Ryuichi Takashima

- Vendor Update (Cisco) – Teppei Kamata