

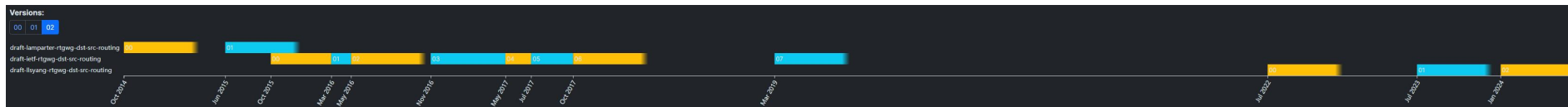
Destination/Source Routing

draft-llsyang-rtgwg-dst-src-routing-02

David Lamparter, Anton Smirnov, **Shu Yang**, Jen
Linkova, Mingwei Xu

Draft History

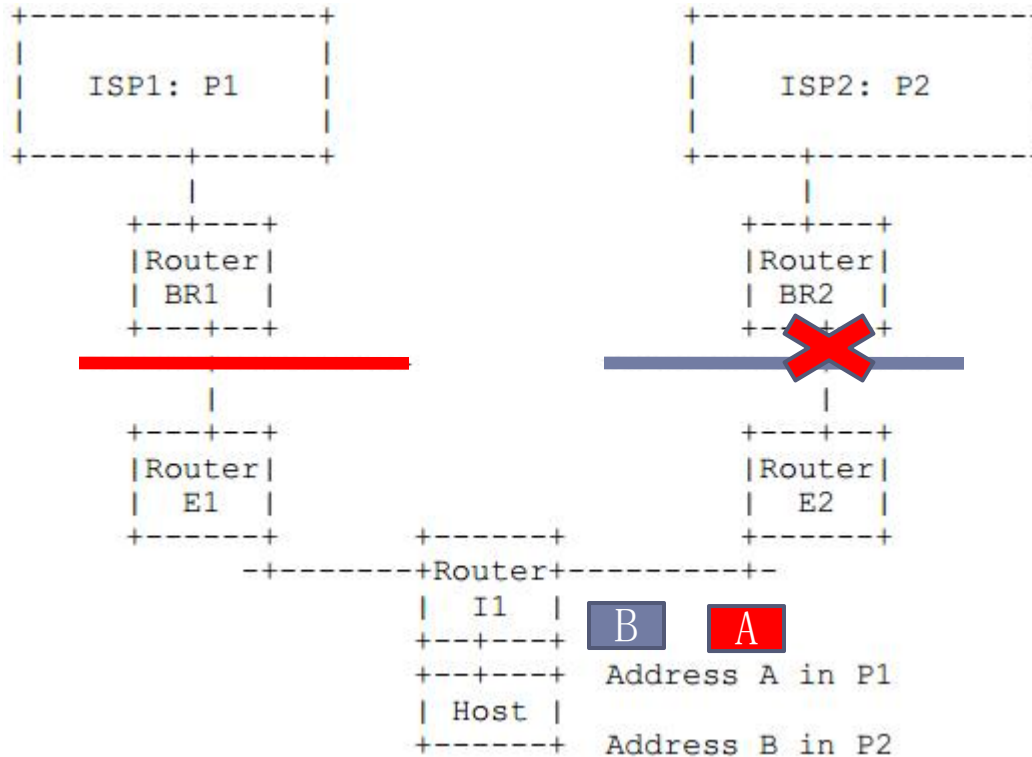
- ▶ Oct 2014: David Lamparter propose this draft
- ▶ July 2019: the authors asked for WGLC on draft-ietf-rtgwg-dst-src-routing
- ▶ WGLC never happened
- ▶ We still need to take source into account while making routing decision
- ▶ July 2022: draft-ietf-rtgwg-dst-src-routing-07 resubmitted as draft-llyang-rtgwg-dst-src-routing-00, and now it is -02



Use Cases

- ▶ IPv6 multihoming using PA space
- ▶ Traffic Engineering/Traffic Segmentation
- ▶ Walled-Garden and limiting access to specific sources only ...
- ▶ and a few others...

Ingress Filtering on Upstream



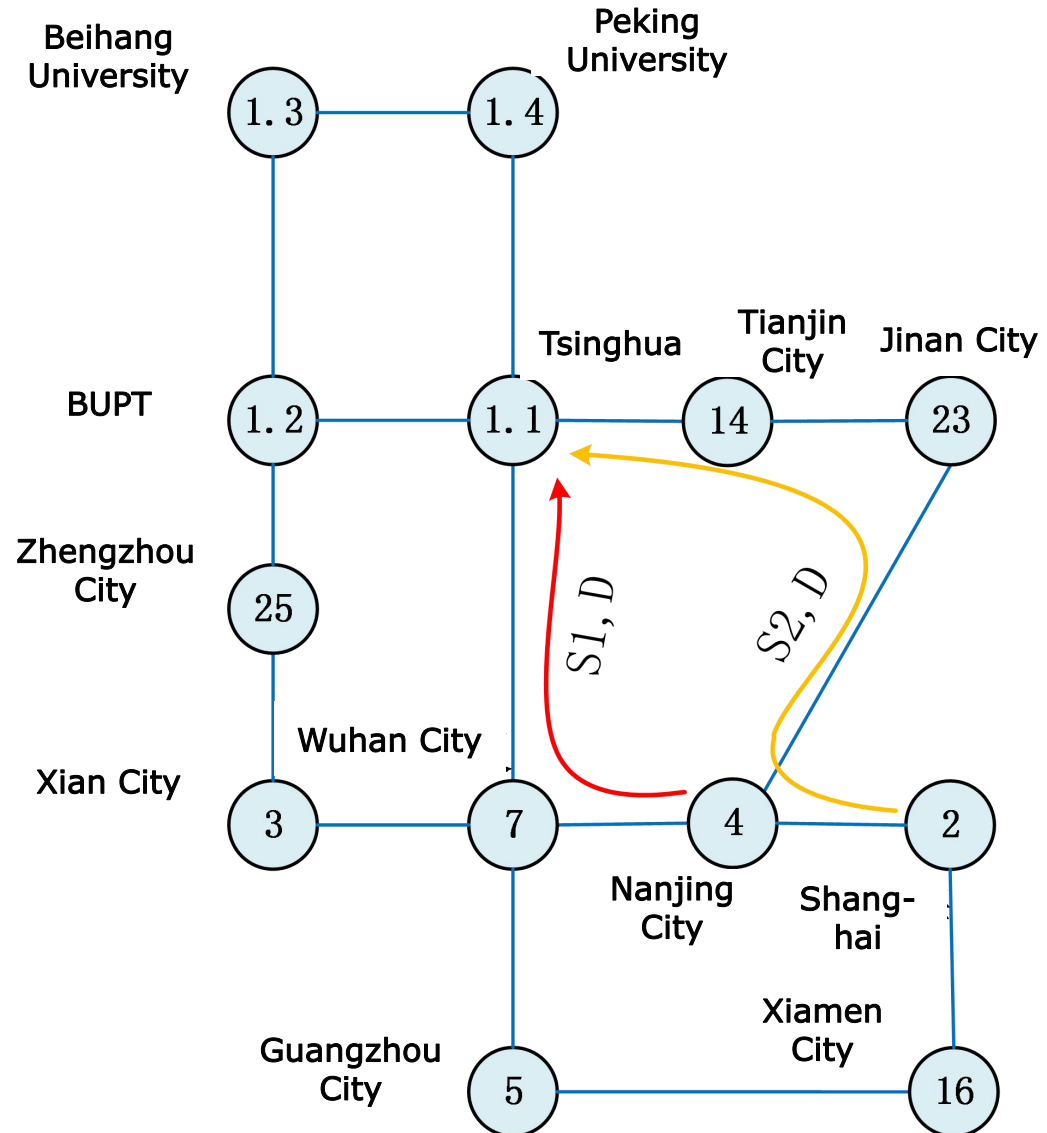
- ▶ MTR, PBR and L3-VPN can solve the problem
- ▶ But we still need the ability and flexibility in routing protocol

Scope and Key Principles

- ▶ For IPv6
- ▶ The document defines expected behaviour, not exact algorithm
- ▶ The source prefix is matched after the destination prefix

Implementation and Deployment Status in CERNET

- ▶ 20 updated src/dst routers
- ▶ Divert traffic from Shanghai-Wuhan-Tsinghua to Shanghai-Jinan-Tsinghua
- ▶ Advantages:
 - ▶ Easy to configure
 - ▶ Less headers compared with SRv6
 - ▶ Less errors or loops



Implementation and Deployment Status

- ▶ FRR has already supported it
- ▶ Cisco has implemented a prototype of dst/src router

Related Drafts

<http://tools.ietf.org/html/draft-troan-homenet-sadr>

“IPv6 Multihoming with Source Address Dependent Routing (SADR)”, Ole Troan, Lorenzo Colitti, 2013-02-18

<http://tools.ietf.org/html/draft-xu-homenet-twod-ip-routing>

“Two Dimensional-IP Routing Protocol in Home Networks”, Mingwei Xu, Shu Yang, Jianping Wu, Dan Wang, 2013-02-18

<http://tools.ietf.org/html/draft-baker-ipv6-isis-dst-flowlabel-routing>

“Using IS-IS with Role-Based Access Control”, Fred Baker, 2013-02-17

<http://tools.ietf.org/html/draft-baker-ipv6-isis-dst-src-routing>

“IPv6 Source/Destination Routing using IS-IS”, Fred Baker, 2013-02-17

<http://tools.ietf.org/html/draft-baker-ipv6-ospf-dst-flowlabel-routing>

“Using OSPFv3 with Role-Based Access Control”, Fred Baker, 2013-05-02

<http://tools.ietf.org/html/draft-baker-ipv6-ospf-dst-src-routing>

“IPv6 Source/Destination Routing using OSPFv3”, Fred Baker, 2013-05-02

<http://tools.ietf.org/html/draft-baker-rtgwg-src-dst-routing-use-cases>

“Requirements and Use Cases for Source/Destination Routing”, Fred Baker, 2013-08-13

<https://www.ietf.org/archive/id/draft-xu-rtgwg-twod-ip-routing-01.txt>

“Two Dimensional IP Routing Architecture”, Mingwei Xu, Jiangping Wu, Shu Yang, Laizhong Cui, Dang Wang, 2022-02-24

Call for Adoption?

Thank You!!!