Framework for Multi-domain IPv6-only Underlay Network and IPv4 as a Service

draft-xie-v6ops-framework-md-ipv6only-underlay

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Main Objective

- Provide end-to-end IPv4 service delivery over multi-domain IPv6-only underlay networks, and improve data forwarding efficiency by eliminating unnecessary IPv4/IPv6 conversion in a scalable way.
- Presented in IETF#113, the title updated twice, the current version is -05.
Problem to be Solved

Problems: tunnel by tunnel, excessive transition gateways, etc.

New framework is needed to setup end-to-end IPv6 tunnel or translation-based data-path across domains in a secure and scalable way, to transfer IPv4 service from the ingress PE to the egress PE without any transition functions in the middle of the data path.
Address Mapping Rule to provide IPv4/IPv6 Prefix mapping at each PE device located at the edge of the network
- Address Mapping Rule exchange to provide the reachability information of IPv4 prefix across IPv6-only domains
- Both encapsulation and translation are supported with the same rule-based Stateless IPv4/IPv6 address conversion algorithm
It is compatible with existing techniques, such as 464XLAT.

It can be extended to networks which consist of multiple ASes and are operated by different operators.
Comments Received So Far

• Comments were received from Brian E. Carpenter, Bob Harold, Xipeng Xiao, Fred Baker, Jen Linkova, Giuseppe Fioccola, Shuping Peng, Zhenbin Li, Ron Bonica, Cheng Li, Vasilenko Eduard, Jingrong Xie, etc.

• All are appreciated!
Changes Since IETF#114

• SRv6 is removed from the requirements list based on the comments from Ron Bonica, in particular. The framework does not specific TE techniques as mandatory.
• The “Security Considerations” Section was updated based on comments from Jen Linkova.
• Revisions were made to reflect the outcome of the discussions with Jingrong Xie and Vasilenko Eduard on the mailing list.
• Thomas Graf added as a co-author
• And many other edits
Next Steps

• We think the document is ready for a Call for Adoption

• Comments and suggestions are welcome, as usual
Thank you!

Q&A