

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

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

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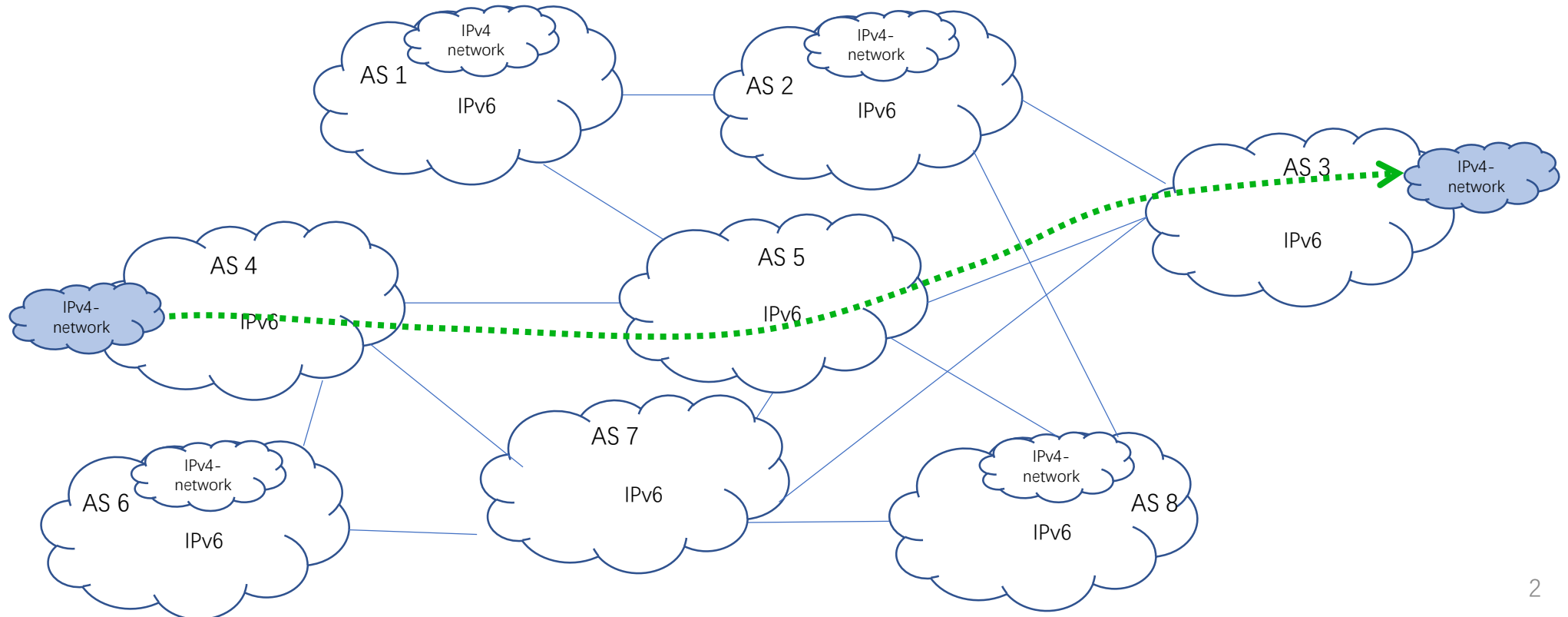
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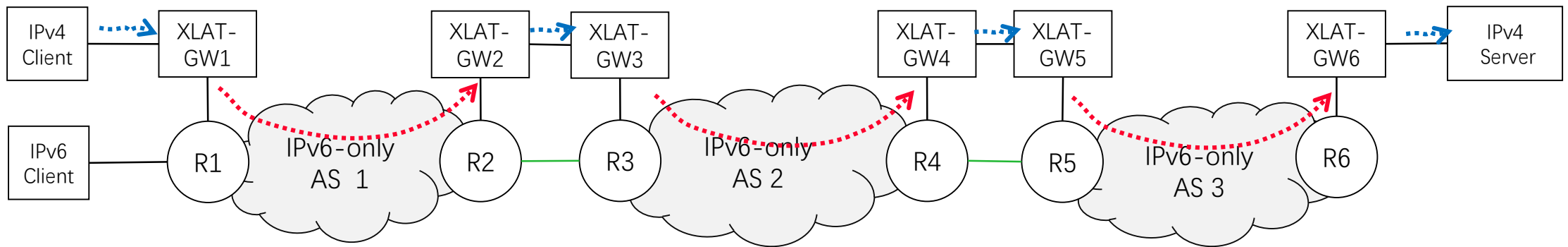
Main Objective

- 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.



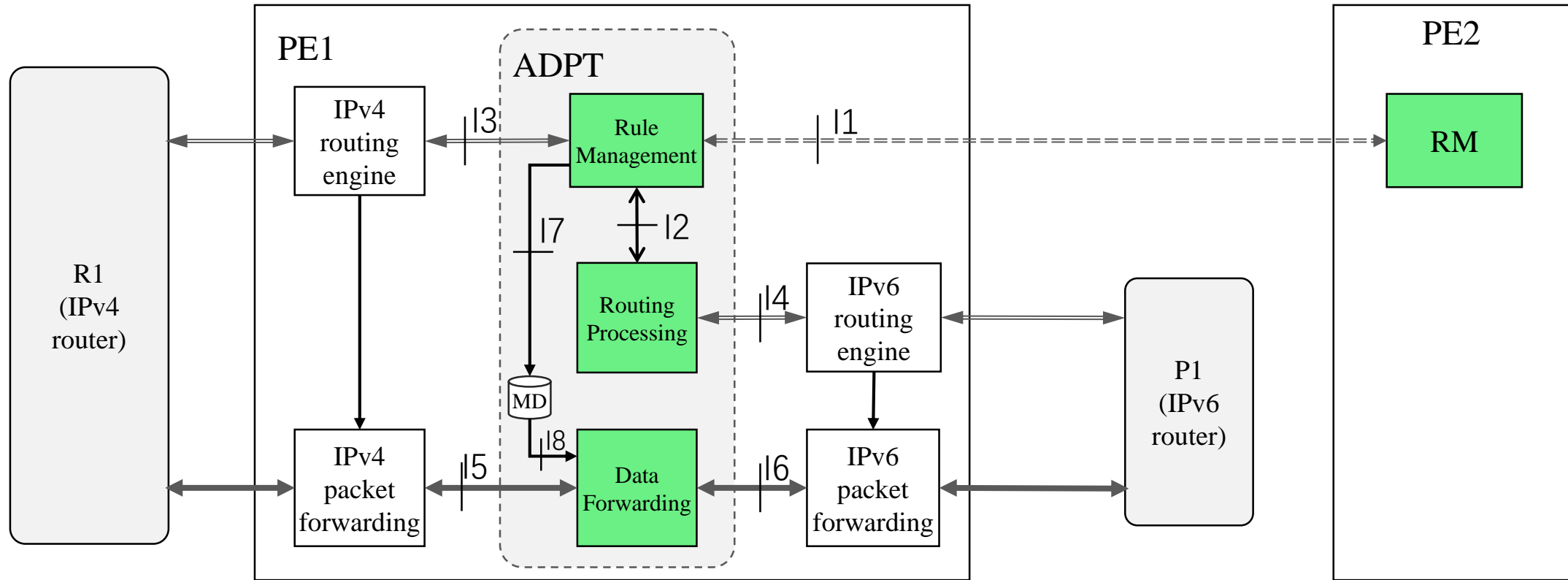
Problem to be Solved

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



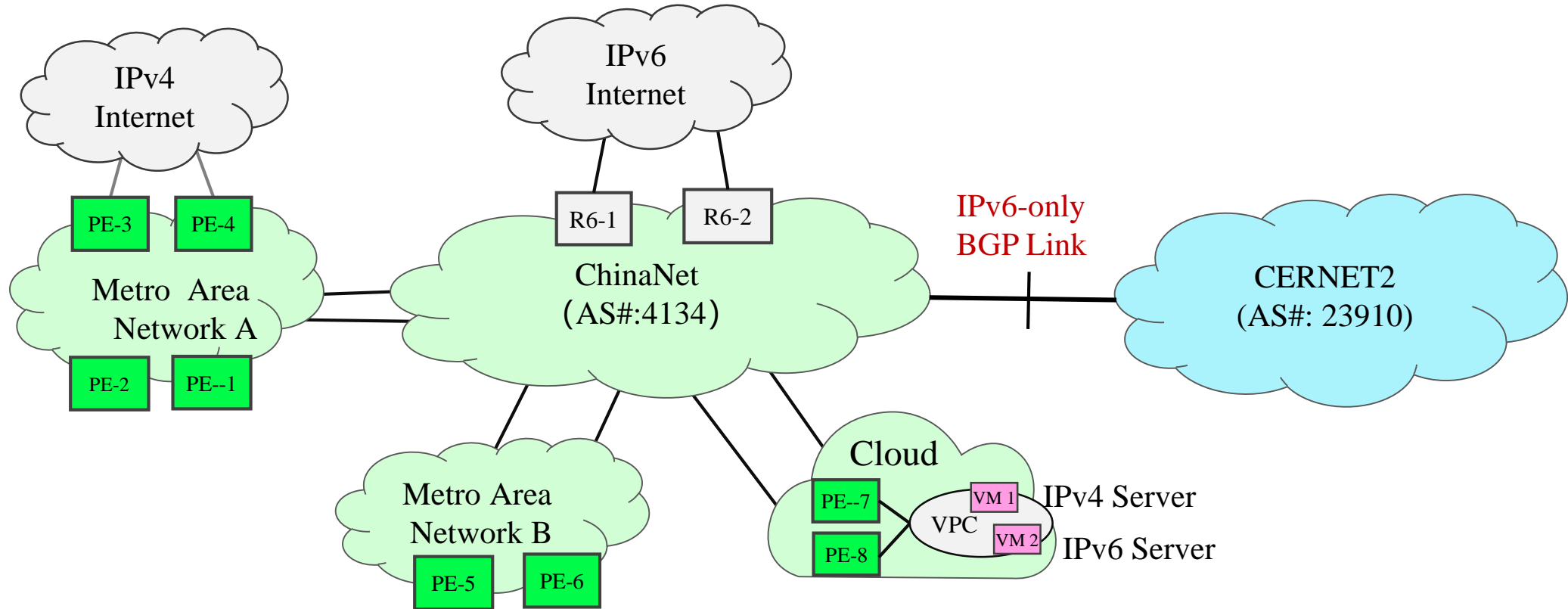
New framework is needed to setup end-to-end IPv6 tunnel or translation-based data-path across domains in a secure and scalable way, to transfer IPv4 service from the ingress PE to the egress PE without any transition functions in the middle of the data path.

The Framework at a glance



- 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

The Field Trial in Production Network



- 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