

Deploying ALTO using BGP-LS

draft-zhang-alto-bgp-ls-00

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Network Information -> ALTO Maps

- Network Map
 - Topology information
 - Inter-domain topology and intra-domain topology
 - CIDRs distribution
- Cost Map
 - Routing information
 - end-to-end routes
 - Performance metrics information
 - routing cost
- BGP-LS is a potential approach to collect all the information above

BGP-LS Benefits and Limitations

- BGP-LS [RFC7752] allows a BGP speaker to advertise link state database or traffic engineering database of its connected IGP areas
- Benefits
 - Could be a unified interface to advertise IGP topology, routing information and additional performance metrics
 - Reuse existing BGP sessions (no extra connection is required)
- Limitations
 - Only one-hop advertisement: Cannot be propagated to remote routing servers

ALTO Deployment Consideration

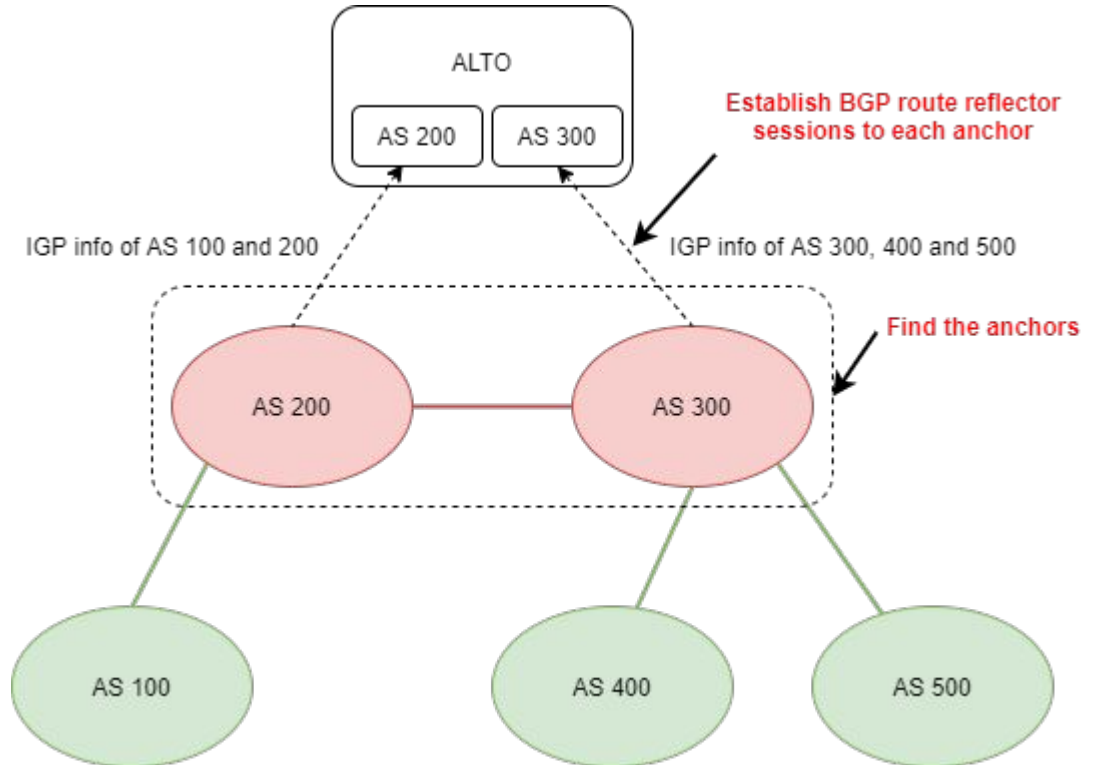
Talking to every BGP routers is inefficient

Efficiency requirements on deploying ALTO using BGP-LS:

- **Req 4:** The ALTO server SHOULD only communicate with necessary BGP speakers.
- **Req 5:** The ALTO server SHOULD only enable BGP-LS advertisement on necessary BGP sessions between BGP speakers.

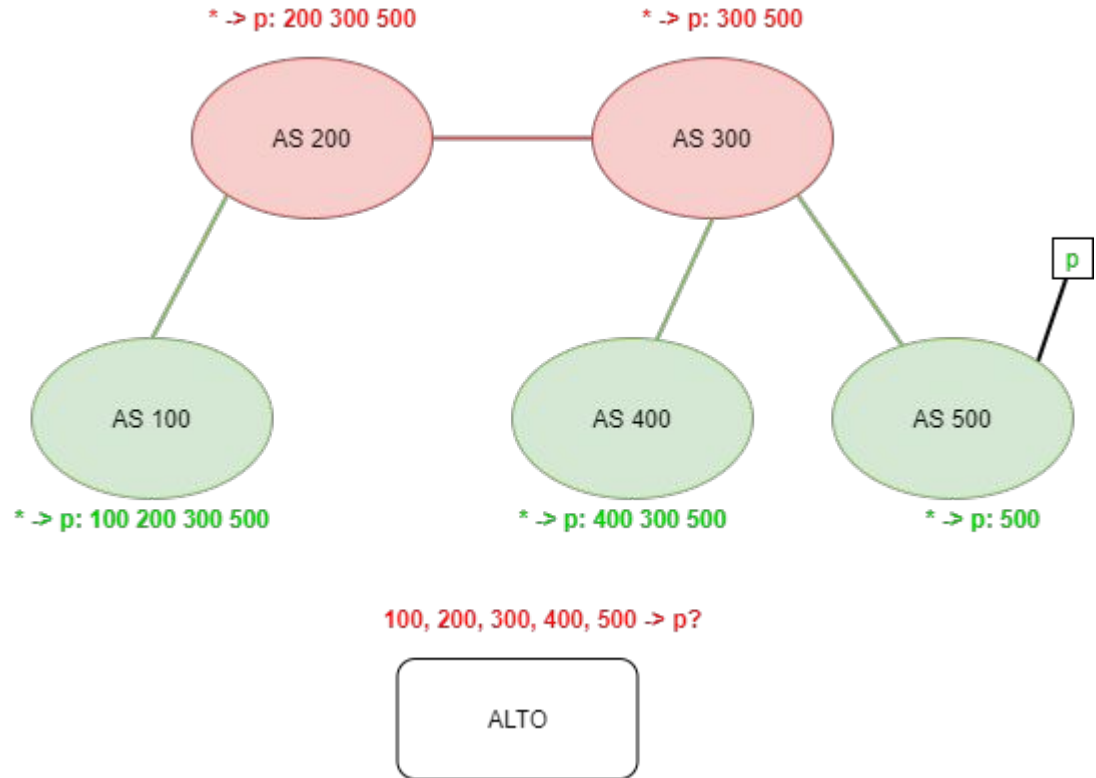
IGP Topology Collection: Full-coverage Problem

- Select a minimal set of ASes as anchors
- Each AS establishes a BGP-LS session with at least one anchor
- Each anchor mirrors its received BGP-LS advertisements with the ALTO server



Routing Information Collection

- The route from a downstream AS can be inferred by the route from an upstream AS
- Select a minimal set of ASes as anchors
- Each AS is a provider or remote provider of at least one anchor
- Each anchor mirrors its BGP RIB with the ALTO server



Summary

- BGP-LS can be used to provide necessary information
- How to collect necessary information by establishing minimal BGP sessions should be considered