Methods for Prevention, Detection and Mitigation of BGP Route Leaks

ietf-idr-route-leak-detection-mitigation-06
(Route leak definition: RFC 7908)

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Route Leak: The Tale of Two Culprits

- Intra-AS and Inter-AS solutions are necessary.
# Building Blocks

<table>
<thead>
<tr>
<th>Intra-AS route leak prevention (iBGP messaging)</th>
<th>Inter-AS route leak detection/mitigation</th>
</tr>
</thead>
<tbody>
<tr>
<td>• COMMUNITY, or</td>
<td>• Optional transitive attribute</td>
</tr>
<tr>
<td>• Attribute</td>
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</tbody>
</table>

Configure peering relation for each peer (per prefix)

**OOB communication between operators:**
Peering relation, ASN, interface IP

OOB = Out of Band

Configuration Process Flow

OOB communication

Provider → Customer → Lat. Peer → Complex

Configure

OOB: Prefix sets with different relations
Inter-AS Solution: RLP Attribute

Optional Transitive Attribute

<table>
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<tr>
<th>ASN: N</th>
<th>RLP: N</th>
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Most Recently Added

<table>
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Least Recently Added
No Single Point of Failure & Large ISPs’ Ring of Security

More robust in partial deployment
(AS7, AS8, AS9 not upgraded)
**Building Blocks** *(with BGP Role negotiation)*

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**Configure peering relation for each peer (per prefix)**

- BGP OPEN / BGP Role Capability negotiations – re-confirming the role stated in OOB communication
- OOB communication between operators: Peering relation, ASN, interface IP

ymbk-idr-bgp-open-policy
Configuration Process Flow (with BGP Role negotiation)

- **OOB communication**
  - Provider
  - Customer
  - Lat. Peer
  - Complex

- **Configure**

- **OOB: Prefix sets with different relations**

- **BGP Role Capability negotiations**
  - (re-confirming the role stated in OOB communication)

- **Neighbor does not send Role**
- **Mismatch**
- **Configuration Re-confirmed**

Actions? Set RLP per ISP’s own knowledge?