Extending ALTO by using BGP Communities

draft-contreras-alto-bgp-communities-01

Luis M. Contreras (Telefonica), Danny Lachos (BENOCS)

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**ALTO extension to support BGP Communities**

- **Problem statement:**
  - Network operators use extensively BGP Communities for applying policies to a group of destinations (i.e., IP prefixes)
  - ALTO works with PIDs which also are essentially destination groupings, but decoupled from the concept of BGP Community
  - BGP Communities are advertised through BGP, then being consumable by ALTO

- **Proposal:**
  - To extend ALTO for natively support the handling of BGP communities for both map creation and information exposure in a standard manner (i.e., avoiding interop issues)

- **Objectives:**
  - ALTO to process Community information from BGP (as used to get topology information)
  - ALTO to provide Network / Cost maps based on Communities
  - To facilitate and foster the integration of ALTO in operational networks

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**Table: Local Preference**

<table>
<thead>
<tr>
<th>Community</th>
<th>Local Preference</th>
</tr>
</thead>
<tbody>
<tr>
<td>201:110</td>
<td>110</td>
</tr>
<tr>
<td>201:120</td>
<td>120</td>
</tr>
</tbody>
</table>

**Figure:**

- **Service Provider AS 200**
- **Customer AS 201**
- **BGP Community**
- **ALTO Server**
- **BGP Speaker**
Aspects to be addressed

• How to use / apply the concept of BGP community in ALTO in comparison to current PIDs
  • Different potential relationships between BGP Community and PID (i.e., BGP Community as sub-set / super-set / same as PID)

• How to retrieve the BGP Communities in the network
  • Processing of BGP session messages carrying Community information
  • Same definition of Community both in network and in ALTO (by means of OAM [I-D.ietf-alto-oam-yang]
  • Others?

• Impacts on maps
  • BGP community can lead to maps representing one-to-many or many-to-many topological situations, how to deal with that?

• BGP Community representation in ALTO
  • Need for defining the better way of representing a Community (i.e., Abstract Network Element, a new representation, ?)

• Security considerations
Next steps

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  • Collect feedback from the WG
  • Consider this as part of a new charter item on ALTO operational evolution (potentially together with other aspects requiring interoperability among implementations, as well as other issues such as security, etc)

• Any comment / feedback is more than welcome