IPv6 multihoming
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The problem

† A client network wants to connect to two providers
  † Resilience, load balancing, ...

† It receives addressing space from both providers

† If it announces both ranges on both links:
  † the IPv6 routing table explosion is programmed
  † It will come quicker than in IPv4
Strategy

† **KISS (keep it simple & sensible) approach to network multihoming**

† **Based on well-known technologies**

† **Simple proof of concept possible today**

† **But remember**

† Just trying to solve the routing problem.
Communities have been used in BGP-4 for a long time to implement routing policies. Well-known communities (localAS, no-export,...) are used to limit the propagation of an advertisement to an AS, an AS confederation, etc.
Proposal

- Define an other well-known community value, i.e. ‘ipv6-multihomed’

- Tag client advertisements with this community
  - We could start with manual configuration for proof of concept
  - Later define extensions to do this automatically if needed

- Define points in the routing hierarchy which will block further propagation of the advertisements tagged with this
  - Program filters by hand now
  - ‘Hardwired’ in the future (like no-export et.al. now)
Addressing space delegation

IX_1  

IX_2  

ISP1  delegates  AddSp1  

ISP2  delegates  AddSp2  

IX_1  

IX_2  

ISP1  

ISP2  

Client  

Código 00/00
The strategy

- ISP1 delegates AddSp1 to client
- ISP2 delegates AddSp2 to client
- Client advertises both delegations through his links and marks multihomed addressing space with ‘ipv6-multihomed’ community
- These advertisements can progress up to the IX level
- The advertisements marked with ‘ipv6-multihomed’ community are blocked by the IX’s outbound BGP-4 sessions
The complete picture: Routing advertisements

Aggregated into ISP1’s addressing space

Advertisedment marked as ‘ipv6-multihomed’

‘Regular’ advertisement
Contact

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