Benefit of AS-Path Transparency using BIRD

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AGENDA

• What is AS-Path Transparency?
• Why Bird?
• Topology /Scenario
• Benefits of As-Path Transparency
What is AS-Path Transparency?

- AS Path Transparency occurs when the AS –Path is invisible (not included) in the Updates between Two eBGP peers (Server –Client).

- A route server does not insert its own AS number in the AS Path updates to the clients thus providing AS Path Transparency.

- When a route server client receives an update from a route server, the Server AS Path, MED and next hop are transparent i.e. not included in the update. For Cisco extra configuration needed (no bgp enforce-first-as).

- Peering appears to be between directly connected peers but in reality, the route server mediates this peering. This is invisible to the peers concerned.
In a non-Route Server set up

AS Path
10,50

AS 10

AS 50

AS 20
In a Route Server Set Up

AS 10

AS 50

AS Path .. 10
Why Bird?

- It Worked for us ... with minimal hassle
- Fully functional dynamic IP routing daemon
- Open source
- Features.. RS implementation, Inter-table protocol
- Unix boxes.. Change / Upgrade Hardware, not limited to grades of Hardware
Scenario

• ISP-A is connected to both IXP-A and IXP-B
• The same goes for ISP-B
• Path Exist between ISP-A and ISP-B
• IXP-A is the upstream provider for both ISP-A and ISP-B
• IXP-A connects to IXP-B to connect locally to other ISPs not connected to IXP-A
Benefit – Traffic Increase
Before Route server implementation

- Different paths to reach a destination
- Significant traffic not accounted for
After..

- Better traffic as path is likely to be preferred
- Good “Traffic Engineering”
Asymmetric Routing
Asymmetric Routing ...

- Asymmetric routing. Outbound traffic path not equal to inbound traffic path
- The inbound and outbound traffic can be affect by various policies from various ISP
- Possible packet loss
- Slow
Asymmetric Routing
• Attributes (ASPATH, MED, NEXT HOP) optimized i.e transparent
• Best path most likely to be the route server path
• Symmetric routing.. Outbound traffic path equal to inbound traffic path
• Packet loss reduced
Next Hop

- Update from the originating peer gets to the intending destination peer with minimal BGP hassle..
- Almost a direct peering scenario
- Less hops
Recap : Benefit

- More Traffic generated
- Preferred Path
- Prevent Asymmetric routing Packet Loss
- Less hop
Questions?