Benefit of AS-Path Transparency using BIRD

Anibe Onuche

Internet eXchange Point of Nigeria

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 it's 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

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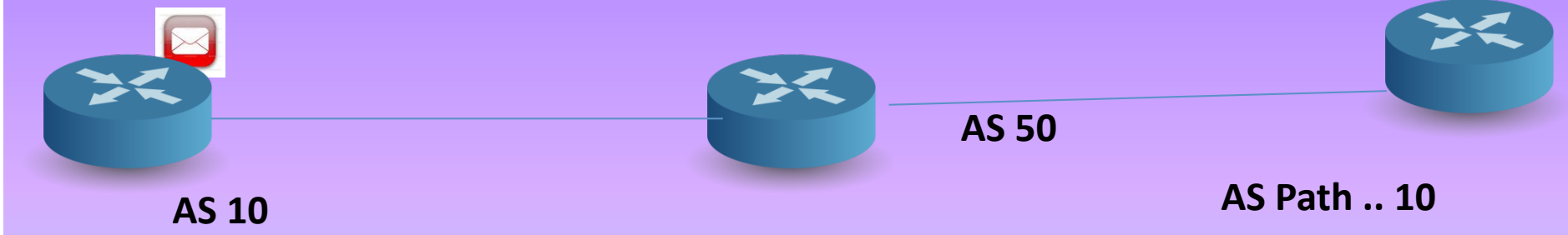
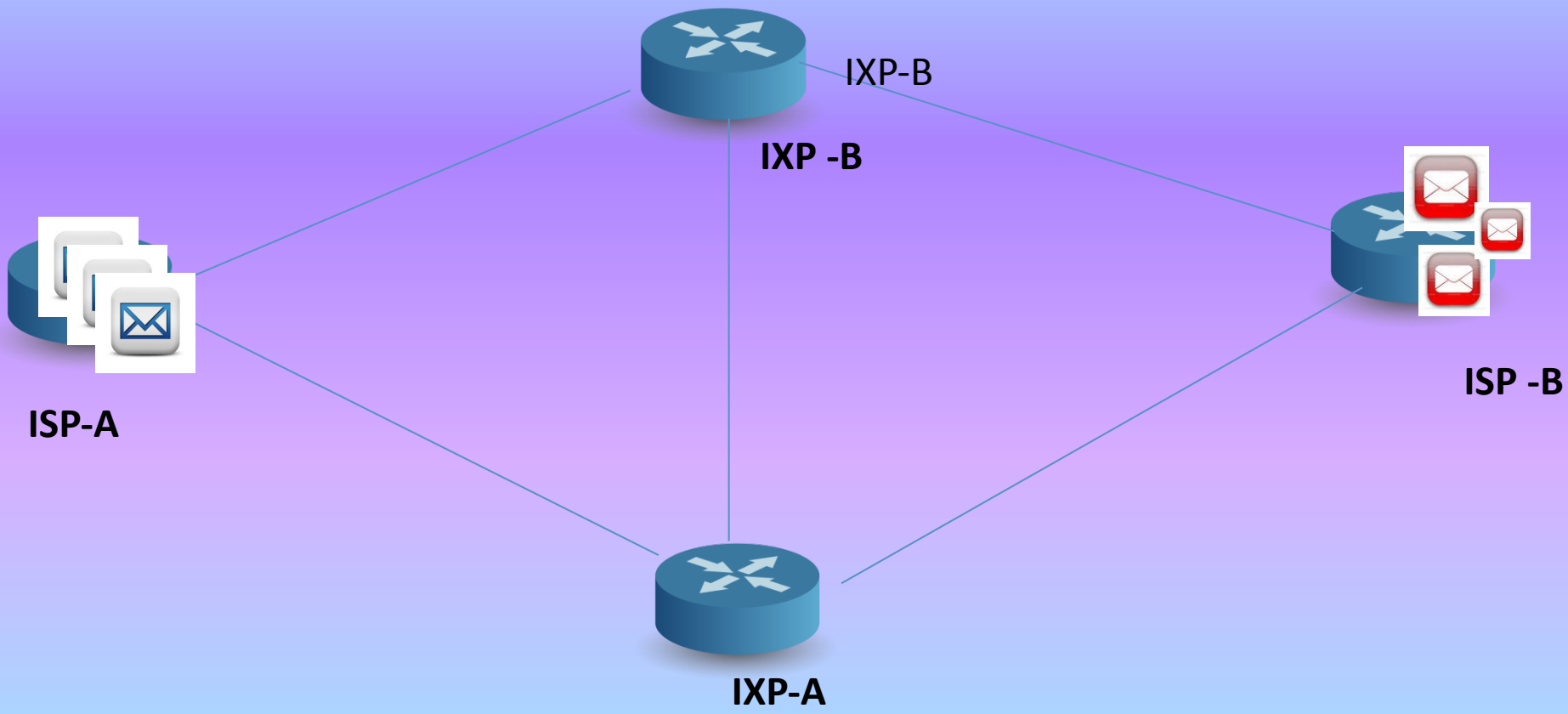
In a Route Server Set Up



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

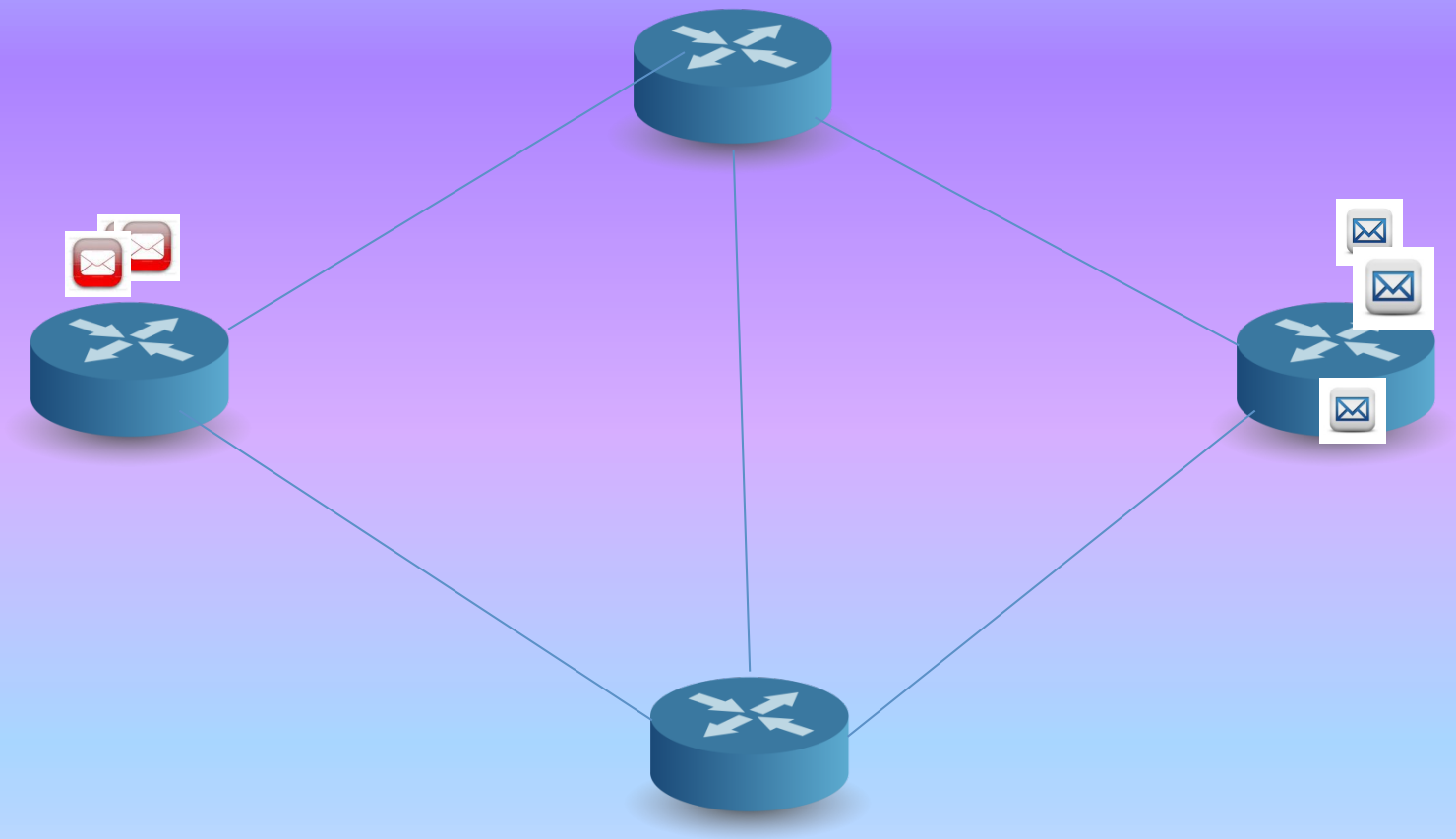
Scenario



Scenario

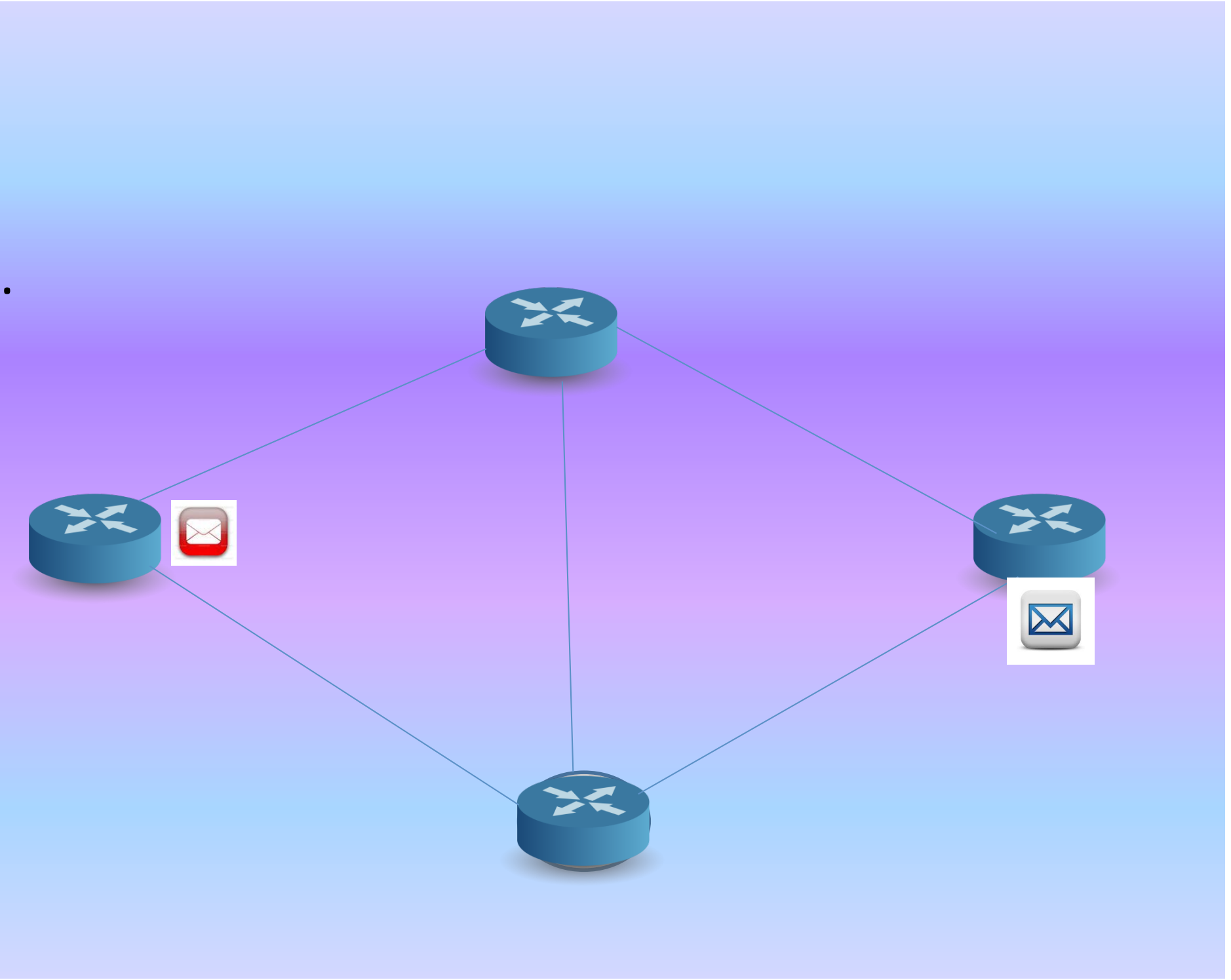
- ISP-A is connected to both IXP-A and IXP-B
- The same goes for ISP-B
- Path Exist between ISP-A and ISP-B
- IXP-A is the upstream provider for both ISP-A and ISP-B
- IXP-A connects to IXP-B to connect locally to other ISPs not connected to IXP-A

Benefit – Traffic Increase



Before Route server implementation

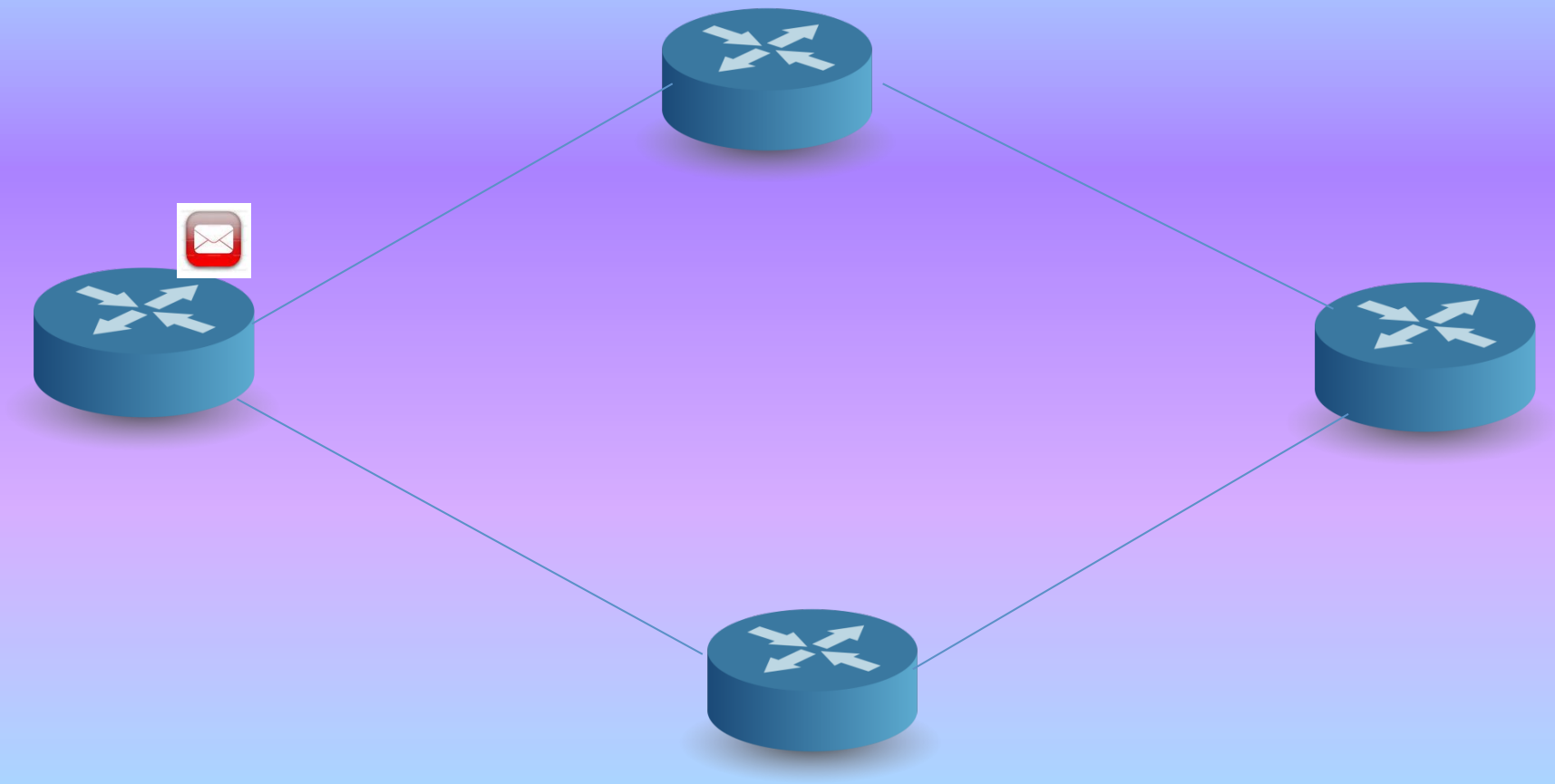
- Different paths to reach a destination
- Significant traffic not accounted for



After..

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

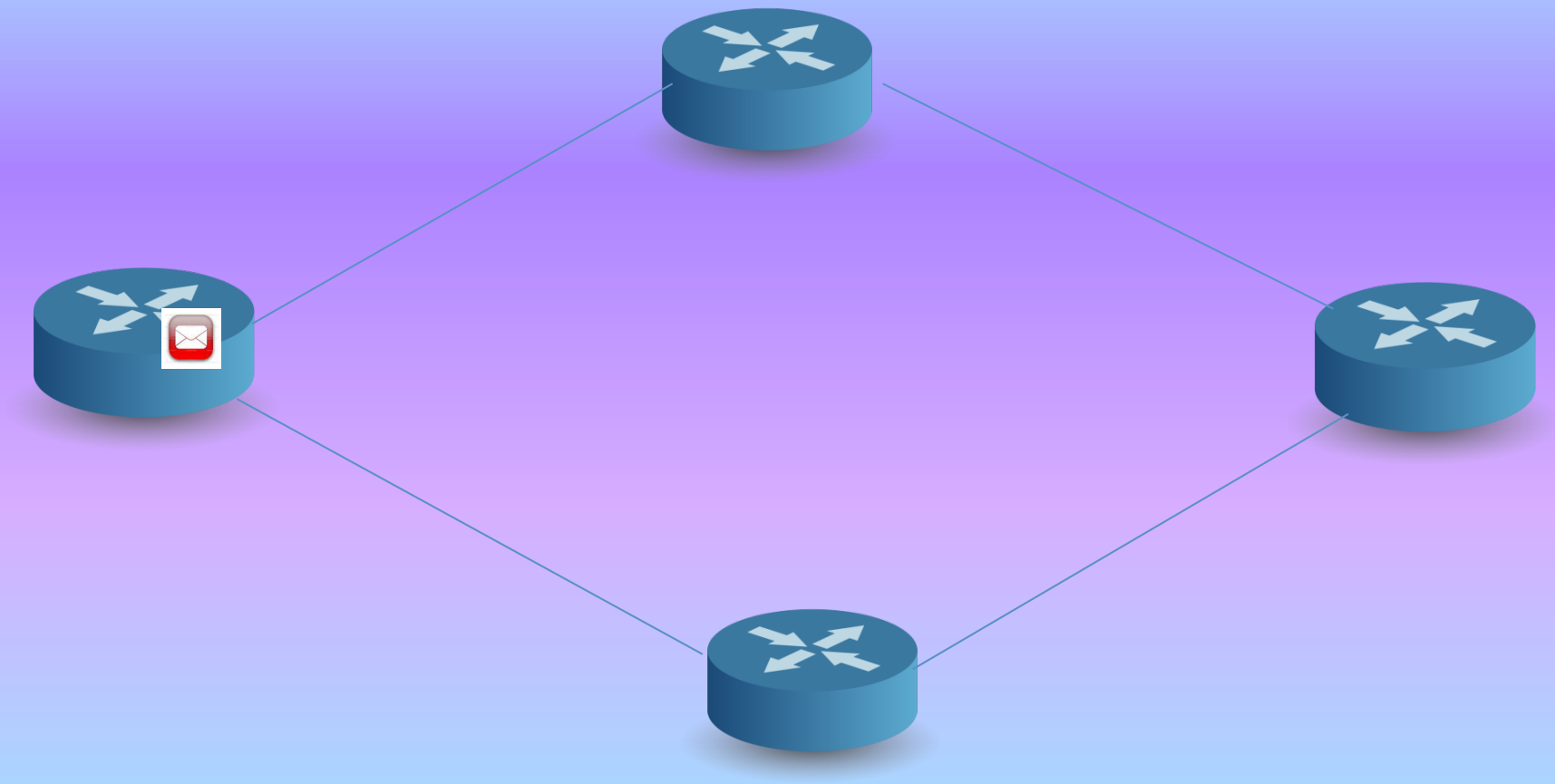
Asymmetric Routing



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



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- 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

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Questions ?