

Problems With the BGP Protocol

IAB Routing and Addressing workshop

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Work Per Prefix

- Actually prefixes with identical path attributes can be grouped into one update
- But: is grouping preserved? Work for router
- With 8 - 10 prefixes per AS: not a big deal?
- In IPv6: 1 - 2 prefixes per AS: not a problem
- *Until we start doing BGP security...*

The AS Path

- Distance vector = count to infinity
 - AS path = not infinity, but still...
- AS path is the only attribute that increases with distance = only inter-AS metric
 - but less and less usable as such as the network gets meshier

Policy

- Makes BGP impossible (?) to model
- iBGP (esp. IGP interactions) complex
- can even create intra-AS routing loops:



Failure Detection

- Through keepalive messages
- RFC: 30 s keepalive time, 90 s hold time
- Cisco: 60 and 180 seconds
- Can lower this, but...
 - when routers get busy, BGP message queues increase and keepalive sending/processing may be delayed: session down

And More...

- Hard to configure (correctly)
- Easy to break aggregation
- Hard to aggregate other than at source
- Anyone can announce any prefix
 - can't tell what is and isn't legitimate

And More (2)

- Announcement valid until withdrawn
 - need to remember which prefix was announced to which neighbor
- Can't attach information to withdrawal
- Convoluted encodings for non IPv4 unicast
- Legacy: encoding for multiprotocol, origin attribute, unclear capability negotiation

Fix or ditch?

thanks,

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