IETF IDR WG BGP Autoconf DT

(Internet Engineering Task Force Inter-Domain Routing Working Group Border Gateway Protocol Auto configuration Design Team….. phew.)

DT Background

- Breakfast at IETF 106 (November 2019), general ideas discussed.
- Formed Jan, 2020:
  - “Proposed requirements and solution space outline to guide our discussion as a WG in producing a solution.”
  - Flurry of activity, some proposed solutions / starting points to consider.
- Stalled….
- Revived Jan 2021
  - Meeting weekly since.
  - https://github.com/ietf-wg-idr/draft-dt-idr-bgp-autoconf-considerations

DT Membership

- Acee Lindem
- Jeff Haas
- Jeff Tantsura
- Jie Dong
- Kausik Majumdar
- Keyur Patel
- Linda Dunbar
- Robert Raszuk
- Randy Bush
- Susan Hares
- Warren Kumari
- Wim Henderickx

Major decision

BGP Autoconf for the Datacenter

Requirements

State requirements:

- Support V4, V6, or both
- Interfaces or loopbacks (+ forwarding)
- Transport end-point info
  - addresses, auth, L3 checks (BFD), GTSM
- Peer session info
  - AS#, identifier, AFI/SAFI, role
- Just enough for a device to decide if and how to open session
- Then we use existing BGP FSM

Roles:

- What **is** the device / what is its function?
  - I'm Stage 3 of a Clos fabric
  - I'm a fabric egress node
  - I like cheese
- Some well-known, majority "private"

Validation mode

- Many operators already have data centers and tooling to build same.
- Validation mode implements auto-discovery, but doesn't start a BGP session.
  - Allows validation that the "as built" matches the "planned".
  - Provides confidence that the next datacenter can use BGP Autoconf.

Layer-2 or Layer-3?

- There are use cases for both.
- Layer 3, probably multicast (all-routers, for example), would suit many use cases.
- Sometimes your layer 3 network is really some sort of switch. If you're intending to use auto-discovery to build switch fabrics, you really mean "the thing at the other side of this port". This potentially means restricted to layer 2 unicast/multicast.

What Next?

- IDR Working Group (and other BGP-interested Working Groups) provide feedback on the requirements.
- Discussion about selecting or creating a BGP auto-discovery protocol as Working Group task.

Questions?

Likely will need to take most of them off-line

Backup Slides

Potential Solutions

L2 Discovery

- Link Layer Discovery Protocol (LLDP)
- L3DL Upper Layer Protocol Configuration
  - Work in the LSVR WG

L3 Discovery

- Extending BGP with new Hello
- Reusing BGP OPEN for auto-discovery
- Bootstrapping BGP sessions via existing BGP sessions
- Bootstraping a BGP Route reflector via the OSPF protocol.