FILTERING OVERLAPPING ROUTES

draft-white-grow-overlapping-routes

Filtering Overlapping Routes

- Inbound
  - When a router receives two overlapping prefixes…
    - Mark the longer one with the BOUNDED community
      - Locally defined community
  - Set a cost community on the longer prefix so it is preferred within the AS
    - This is essentially a tie breaker, leaving current usage of LOCAL_PREF intact
- Within the AS
  - Normal BGP decision process
  - (Optional) Don't install the route in the local RIB
- Outbound
  - Normal BGP decision process
 - Don't advertise routes to eBGP peers if they're marked with BOUNDED

Filtering Overlapping Routes

- AS1 advertises…
  - 10.1.2.0/24 to AS2
  - 10.1.2.0/23 to AS2
  - 10.1.2.0/23 to AS5
- Normally…
  - AS3 and AS4 will receive both 10.1.2.0/23 and 10.1.2.0/24
  - This increases their routing table sizes, but doesn't provide much additional usable information
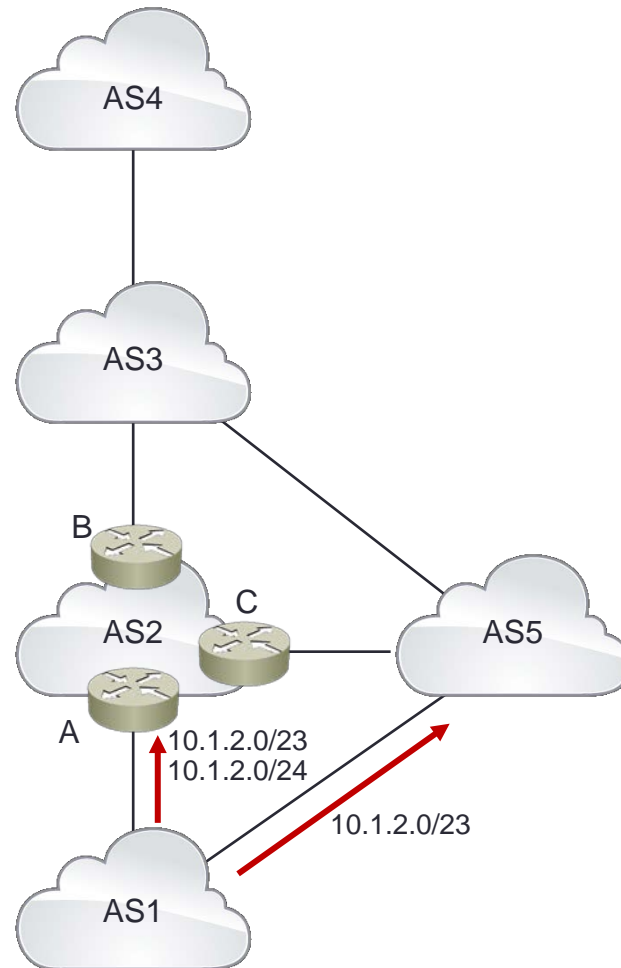
Filtering Overlapping Routes

- New behavior:
  - Router A
    - marks 10.1.2.0/24 as BOUNDED
    - sets the cost community so 10.1.2.0/24 is preferred AS2
  - Router B filters 10.1.2.0/24 towards AS3
- Table size reduction:
  - AS2 may not install 10.1.2.0/24 in the local RIB/FIB
  - AS3 and AS4 now only receive the shorter prefix route

AS4

AS3

B

C

AS2   AS5

A

10.1.2.0/23
10.1.2.0/24

10.1.2.0/23

AS1
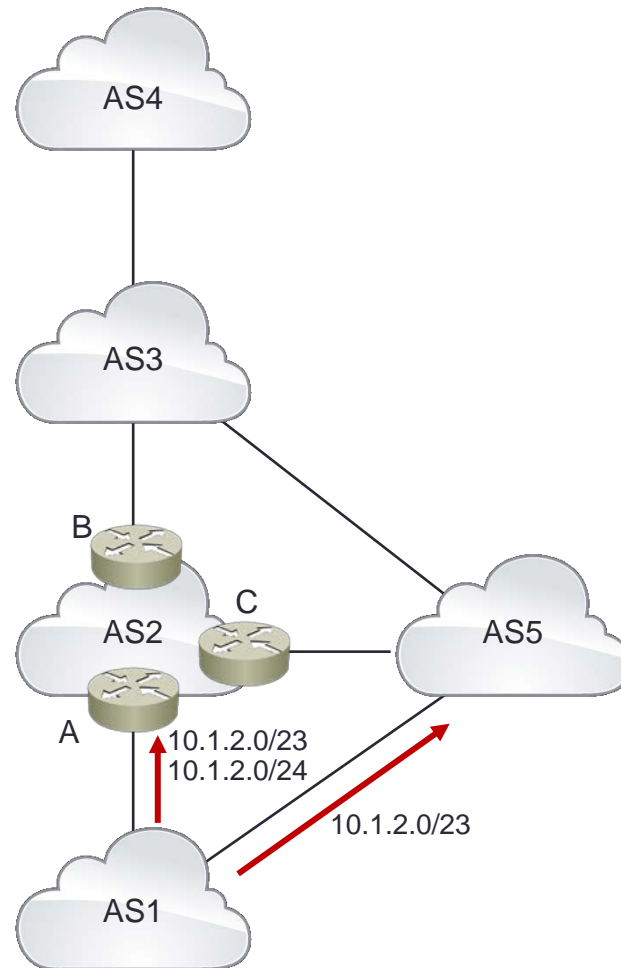
Filtering Overlapping Routes

- The key is to remove routing information when it's no longer needed
  - If the route isn't impacting traffic flow, take it out of the system
  - How do we know it's not impacting traffic flow? Because it is overlapped by a shorter prefix route that leads to the same destination
- This is not aggregation
  - Aggregation increases stretch in the network
  - Aggregation requires ownership of the shorter prefix

Next Steps

- Comments/Questions on List
- Make this a working group doc