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
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