

AS Migration

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The problem

- BGP-speaking networks merge, acquire, split, reconfigure
 - this usually requires routers to change ASNs
 - Confederations not always a good solution
- Difficult for operators to coordinate ASN changes with eBGP peers
 - Each router moved to new ASN must have all eBGP peers reconfigure remote-as **simultaneously** or BGP sessions won't come up
 - doesn't scale to thousands of PE routers with hundreds of sessions each
- Mid-migration AS-Path lengthening creates undesirable traffic shifts

The Solution

- Vendors implemented BGP knobs that allow manipulation of ASN inside PE's BGP
 - Local-AS to masquerade as old ASN to eBGP peers
 - Replace-AS to remove second ASN from AS_PATH to restore expected AS_PATH length
- Looks like normal spec-compliant eBGP session external to the router
- Requires no coordination/reconfiguration from eBGP peers
 - Remote-side migration can be asymmetric and long duration

Why does SIDR need to care?

- AS migration manipulates the current ASN and the AS_PATH across a management domain/trust boundary (SP <-> Customer/peer)
 - BGPsec Path Validation is designed to prevent intentional AS_PATH manipulations, even when they're not malicious
- AS Migration tools widely used by operators
- draft-ga-idr-as-migration published to standardize the vendor knobs so it's not a non-spec BGP hack anymore
- Minor operational considerations to make it work with Origin Validation

Requirements

Assuming IDR adopts ga-idr-as-migration:

- BGPsec MUST support AS-migration
 - SHOULD do it without reducing BGPsec's protections
- MUST NOT require any reconfiguration on the remote eBGP neighbor (CE)
- MUST NOT lengthen AS Path during migration
- MUST operate with existing trust boundaries
 - e.g. can't expect remote side to accept pcount=055 from untrusted/non-confed neighbor

Draft updates (for pending -01)

- Draft-george-sidr-as-migration needs more reviewers and comments (draft-ga-idr does too)
- Currently discusses problem, no solutions/req's
 - Are SIDR considerations (Section 3) accurate/complete?
- Plan to add req's from slide 5, clarifications based on Sandy's review
- Sandy's possible solution (discussed @ AMS interim, can review now if necessary)
 - Right solution?
 - Add to this draft?
 - Add to protocol spec draft?