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draft-uttaro-idr-add-paths-guidelines-00

J. Uttaro uttaro@att.com

A. Simpson adam.simpson@alcatel-lucent.com

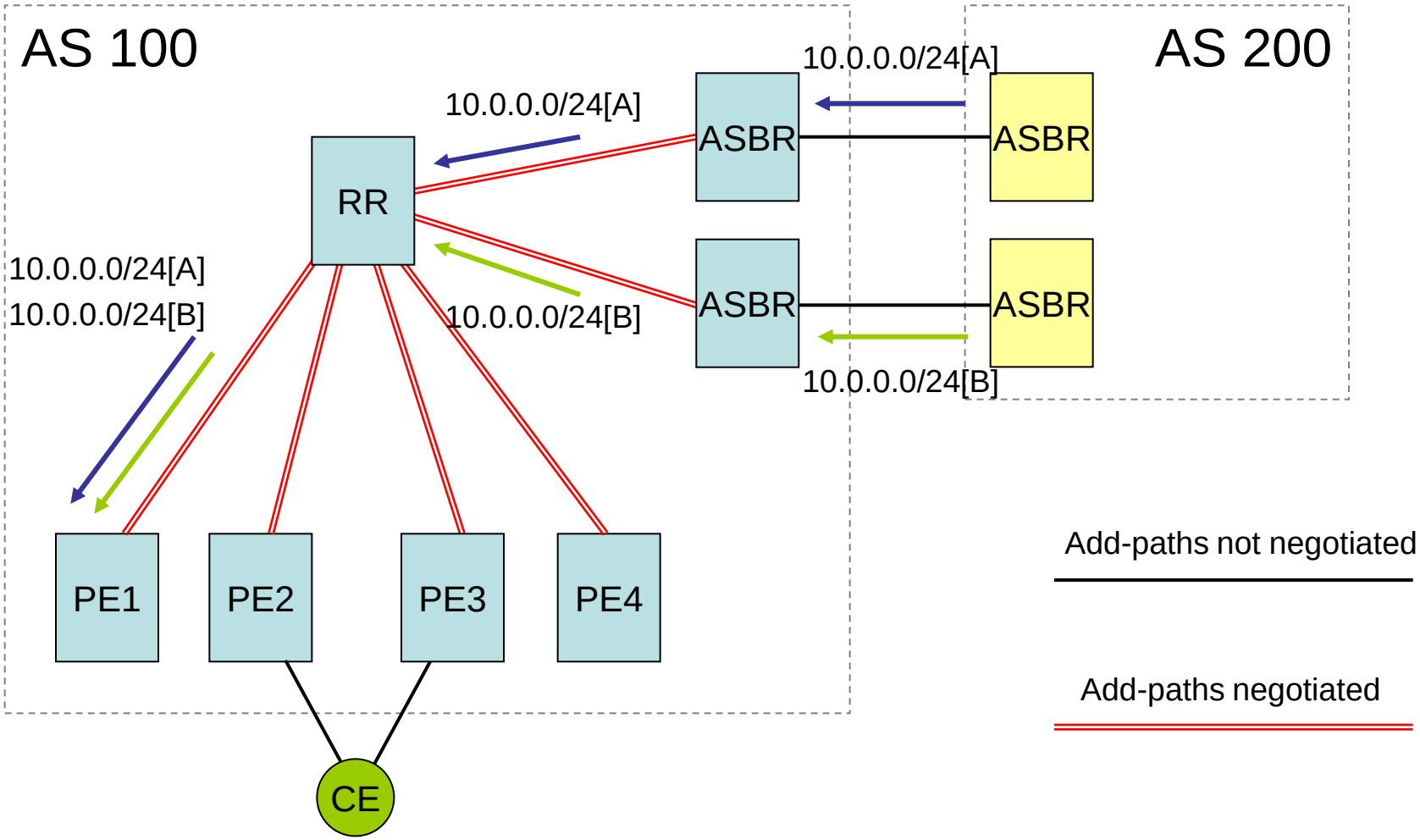
R. Fragassi roberto.fragassi@alcatel-lucent.com

P. Mohapatra pmohapat@cisco.com

Motivations

- Add-paths introduces the ability for BGP speakers to advertise multiple paths for the same prefix/NLRI
  - Faster failover, better loadsharing, reduced routing churn…
- draft-ietf-idr-add-paths-03 describes the protocol mechanics but lacks detail about use cases
- New draft provides best practice recommendations for add-path implementers and network planners
  - Ease multi-vendor interoperability
  - Ensure nodal and network impacts are understood and manageable

Typical Add-Paths Deployment Scenario



Node/Network Impacts of Add-Paths

- Node
  - More avg. paths per prefix = more memory
  - RIB-OUT complexity: need to keep track of all peers to which path X:prefix Y has been advertised
- Network
  - Less routing churn: adv -> withdraw -> adv etc.

Key Question #1

- How to limit the number of paths per prefix to manage resource/memory impact?
  - Globally, per peer, per prefix
  - Send limit vs. receive limit
- Routing consistency is important
  - Need flexibility to advertise different number of paths to different peers without increasing the risk of routing loops

Key Question #2

- Which paths to advertise?
  - N best, full BGP decision process at each iteration
  - All best (subject to multipath constraints) + all second-best (subject to multipath constraints)
  - All best (subject to multipath constraints) + single second-best
  - etc.
- Need to consider the application
  - Fast failover, loadsharing, route oscillation mitigation

Questions?