draft-dickson-(idr-) add-paths-ordered

New Update format to support N-best (and other uses)

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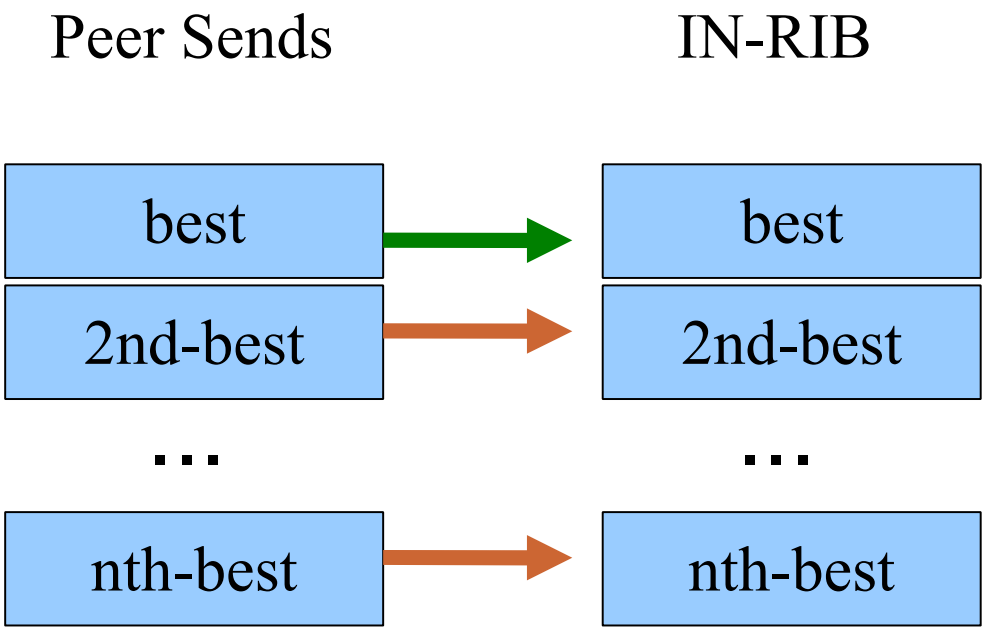
Summary of this draft

- Need to disambiguate multiple announcements for the same prefixes between peers
- Need to support sequence-tagging of prefixes
- Backwards compatible via capabilities negotiation
- Locally configurable depth (value of N)

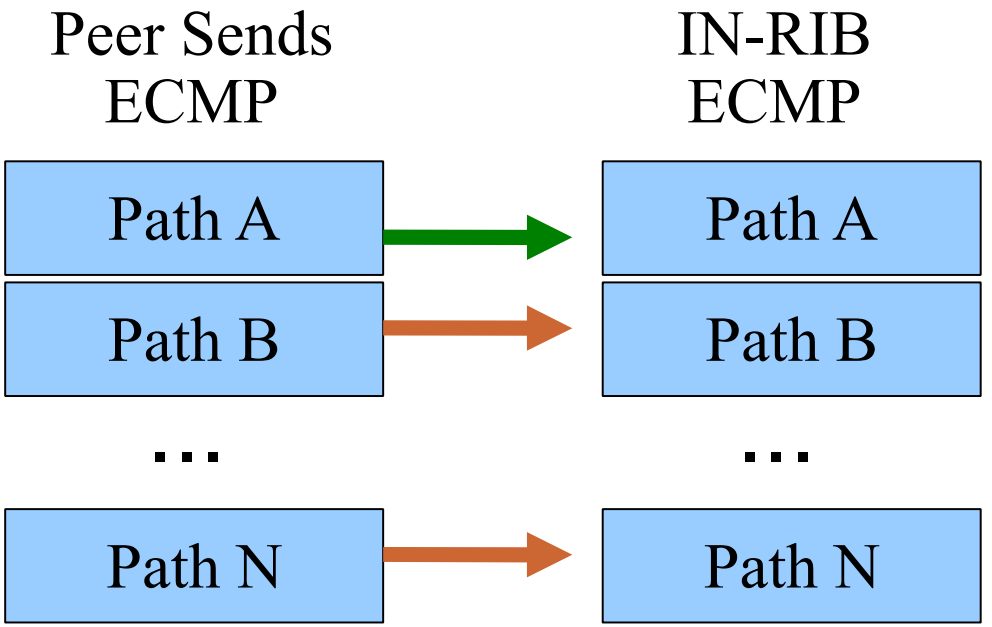
Impact Summary

- Requires additional memory usage for in-rib
- Orthogonal to semantics on how to interpret the values
- Two or more capabilities need to be negotiated:
  - Use of new wire format
  - What new semantics are to be applied, e.g. N-best, ECMP, or even both at the same time

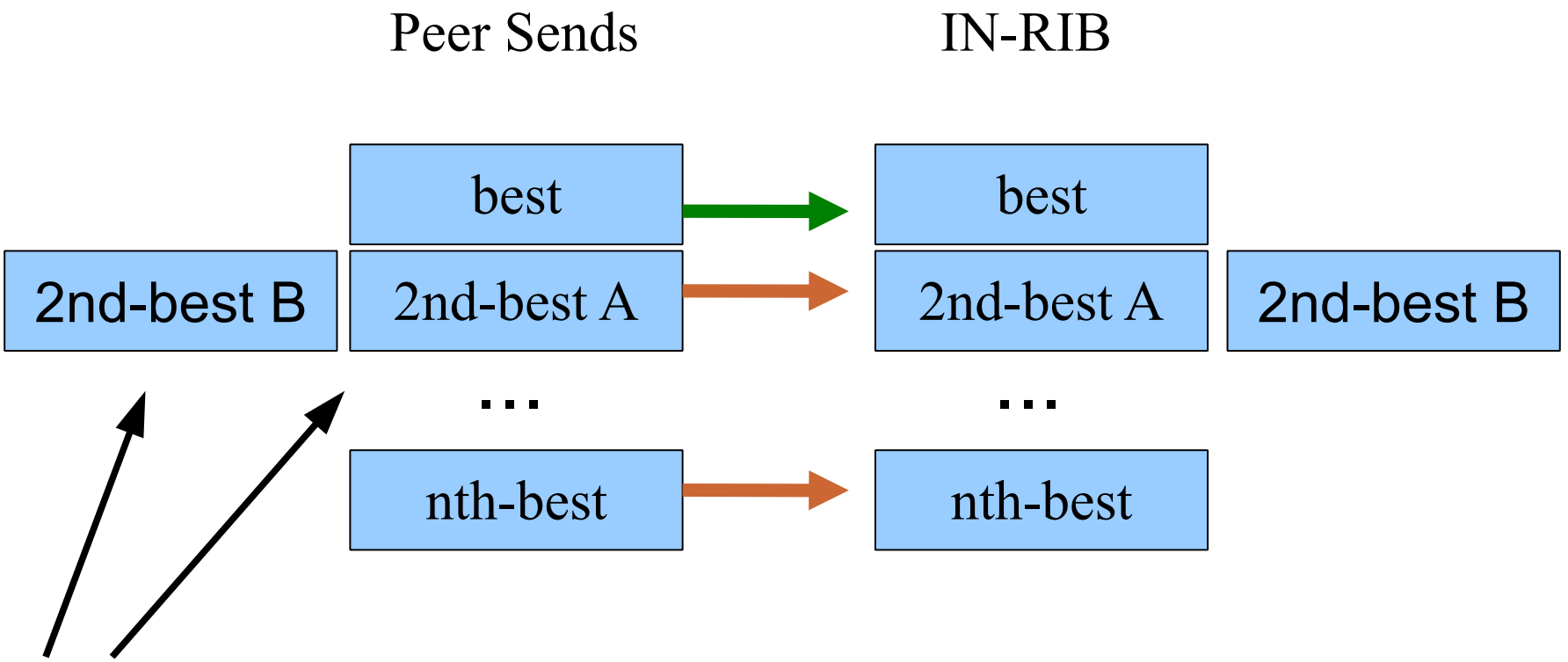
Using Ordinal sequences
Detail per prefix: received per peer



ECMP Using Path ID values
Detail per prefix: received per peer



ECMP & Ordinal sequences
Detail per prefix: received per peer



ECMP Path Pair, selected as 2nd-best path(s)

Comparison with draft-walton-*

- draft-walton-add-paths only adds Path ID
- this add-paths version is more inclusive and flexible
- suggest merger of add-paths drafts

Summary

- Incremental to current BGP standard
- Extra memory needed
  - Sensible implementations likely to minimize the impact of additional paths/attributes
- No direct impact on FIB usage (modulo things that use the additional paths)
- Next steps?

Thank you

- Presentation on IETF 72 site
- Draft updates forthcoming (including some presented here and sent to IDR list)
- Current status: working on implementation via quagga, nearly complete
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