

The seal of the University of Leuven is a circular emblem. It features a central figure of the Virgin Mary seated on a throne, holding the Christ Child on her lap. The figure is surrounded by a decorative border. The Latin text 'UNIVERSITAS CATHOLICA LOVANIENSIS' is written along the top arc, and 'SEDES SAPIENTIAE' along the bottom arc. The year '1425' is inscribed at the bottom center of the seal.

Analysis of paths selection modes for Add-Paths

draft-vvds-add-paths-analysis-00

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Goal

- draft-ietf-idr-add-paths-01.txt
 - Defines how to advertise multiple paths to same NLRI over a BGP session
 - Doesn't tell which paths to select for advertisement
 - Multiple applications which lead to different selection modes
 - (maybe) No interop issues when different path selection modes are applied by speakers in an AS

Goal

- Informational draft
 - List the modes in one draft
 - Evaluate them (what it gives, what it costs)
 - Track potential interop issues

Add-path applications

- Fast Convergence
- Load Balancing
- Med Oscillation reduction
- Churn reduction (eBGP)

Evaluation

- Control plane charge
 - (#paths, not bytes)
- Control plane stress
 - Complexity of running a decision process
- Ability to avoid MED oscillations
- Path optimality
 - Ability to let one router pick the path it would have picked, had it known all the paths available at the borders
- Backup path Availability and Optimality

Modes

- All paths
- N paths (max)
- AS-Wide best paths
- Neighbor-AS group best paths
- Best Loc Pref / Second best Loc Pref paths
- Decisive step -I
- (put your favorite mode here)

Path optimality

- KO for N bests and Group best
 - N Best should be good at making it with a reasonable value of N
- Ensured by all the others

Backup path optimality

- All paths :
Yes
- N best :
No but should be good at making it
- AS Wide best, Group Best :
backup is optimal (when provided)
- Best/Second LP :
Yes
- Decisive step - I :
Yes

RIB Charge

- N Bests mode gives you a bound on RIB charge
- In theory, others don't (~All Paths)
- Decisive step - $I < \text{Best/Second LP}$

MED oscillations avoidance

- All but N-Best

Control plane stress

- Extremely implementation dependent
- How Adj-RIB-IN is maintained and optimized for add-paths

Control plane stress

- All paths :
Easy
- Best/Second LP :
Easy
- Decisive step - I :
too implementation dependent to be relevant
- N best :
Depends on N
- Group Best :
Hard

Tool

- Analysis can be performed
- Required Data gathering is painful

Next

- if there's interest
 - new modes, maybe
 - modes to be ruled out, maybe
 - more details on each mode
 - consider that there's no Ingress-Egress encaps
 - interop issues (hope not)
 - -01 and wg doc ?