Route Flap Dampening made useful for BGP

draft-ymbk-rfd-useable-00

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Motivation

- RFD has been turned off due to serious problem of excessive dampening
- MRAI timers practically turned off due to FC requirements
- No way to protect networks against badly behaving prefixes
- Is there a minimal change that can make RFD effective enough to be deployed?
Mice and Elephants

Abnormal protocol convergence

- 0.01% of the prefixes -> 10% of updates
- 3% of the prefixes -> 36% of updates
Making RFD Usable

- Problem: Current RFD parameters kills both mice (prefixes that don’t flap often) as well as elephants (small range of prefixes that flap very often)

- Possible Solution: Higher Suppress Threshold
  - Trivial to implement
  - Saves mice
  - Reduces churn compared to RFD disabled
Effect of Suppress Threshold

<table>
<thead>
<tr>
<th>Threshold</th>
<th>% of damped prefixes</th>
</tr>
</thead>
<tbody>
<tr>
<td>2K</td>
<td>13.07%</td>
</tr>
<tr>
<td>4K</td>
<td>3.39%</td>
</tr>
<tr>
<td>6K</td>
<td>1.31%</td>
</tr>
<tr>
<td>10K</td>
<td>0.38%</td>
</tr>
<tr>
<td>12K</td>
<td>0.21%</td>
</tr>
<tr>
<td>15K</td>
<td>0.13%</td>
</tr>
</tbody>
</table>
Impact on Churn

Update rate is reduced by more than 20% with [4K-5K], compared to no suppress threshold.

Churn reduction
Summary

- Increasing suppress threshold does prevent well behaved prefixes (mice) from getting damped aggressively
- Prefixes flapping more often (elephants) do get damped
- We propose the following
  - Modify the suppress threshold to no less than 6000
  - Modify the maximum threshold to 50K
- Should help in RFD becoming more effective
Questions?