Route Flap Damping Considered Useable

IEPG / Beijing

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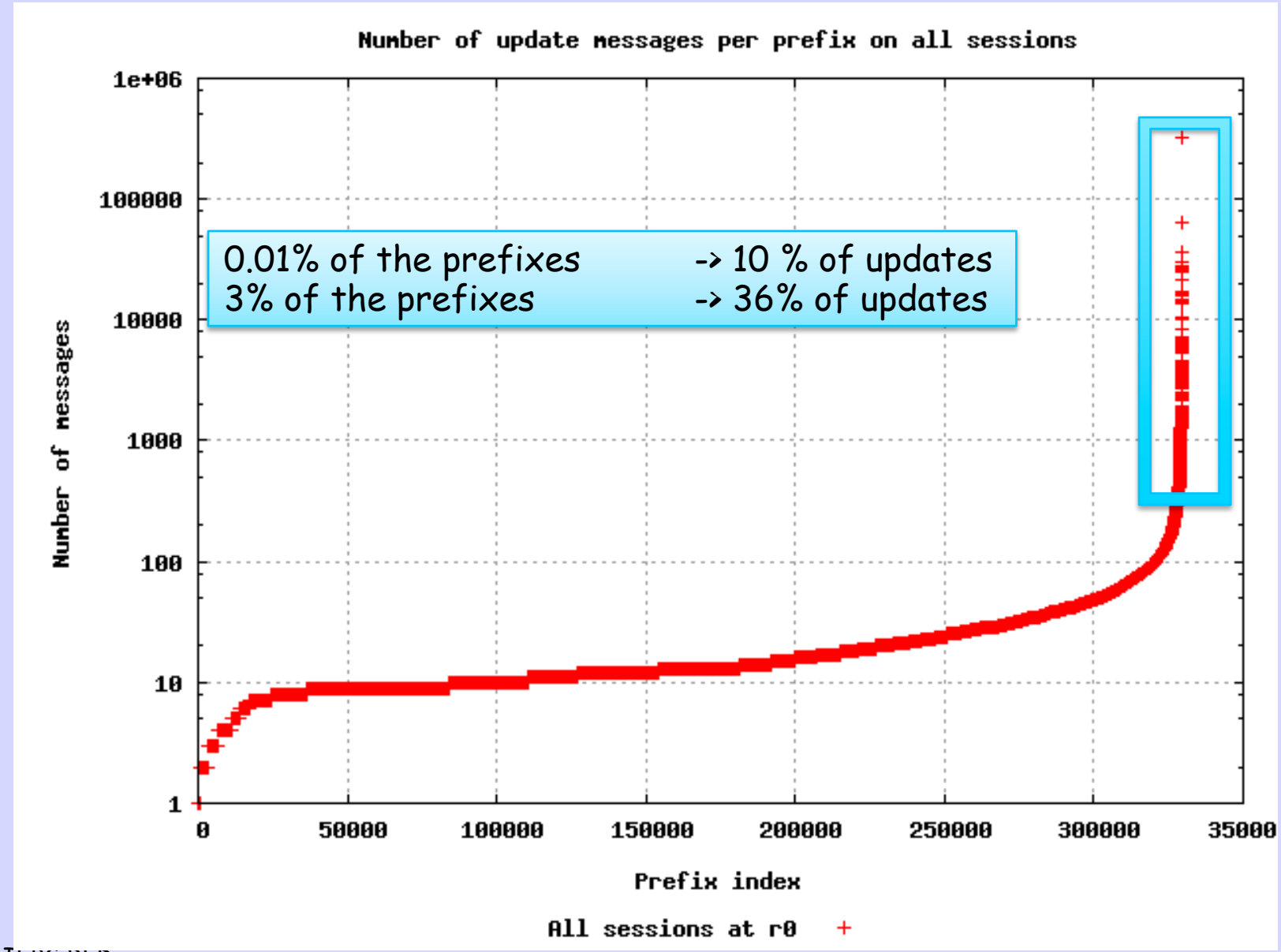
<http://archive.psg.com/101107.iepg-rfd.pdf>

Motivation

- RFD has been deprecated due to serious problems of over-damping
- But we still have really badly behaving prefixes causing churn
- Is there a minimal change that can start to address this issue?

Mice and Elephants

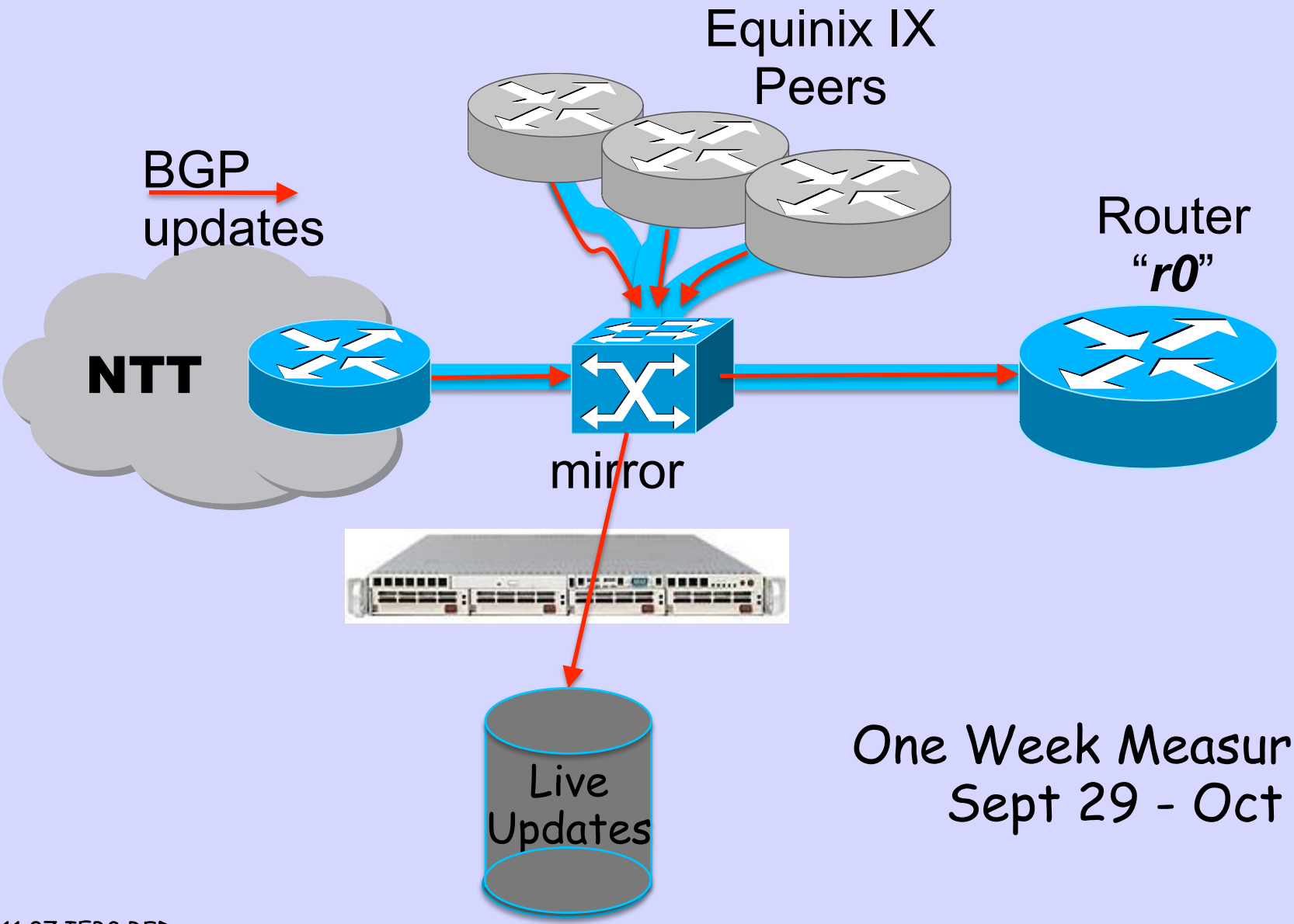


Abnormal protocol convergence

Approach

- Current techniques: MRAI and **RFD**
- Problem: Today RFD kills mice and elephants
- Approach: Higher suppress threshold
  - Save mice
  - Churn reduction compared to no RFD
  - Trivial to implement

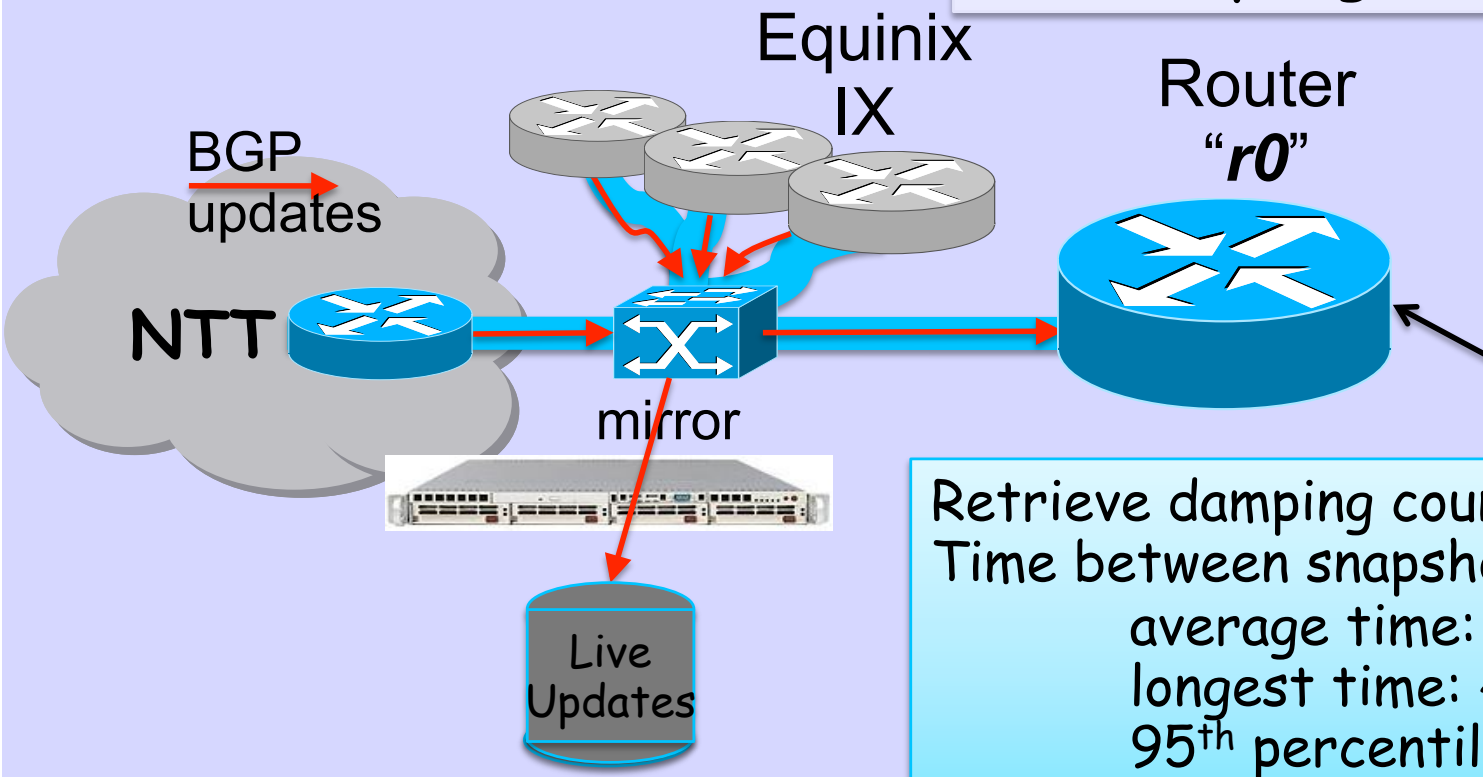
Measurement Structure



One Week Measurement
Sept 29 - Oct 6

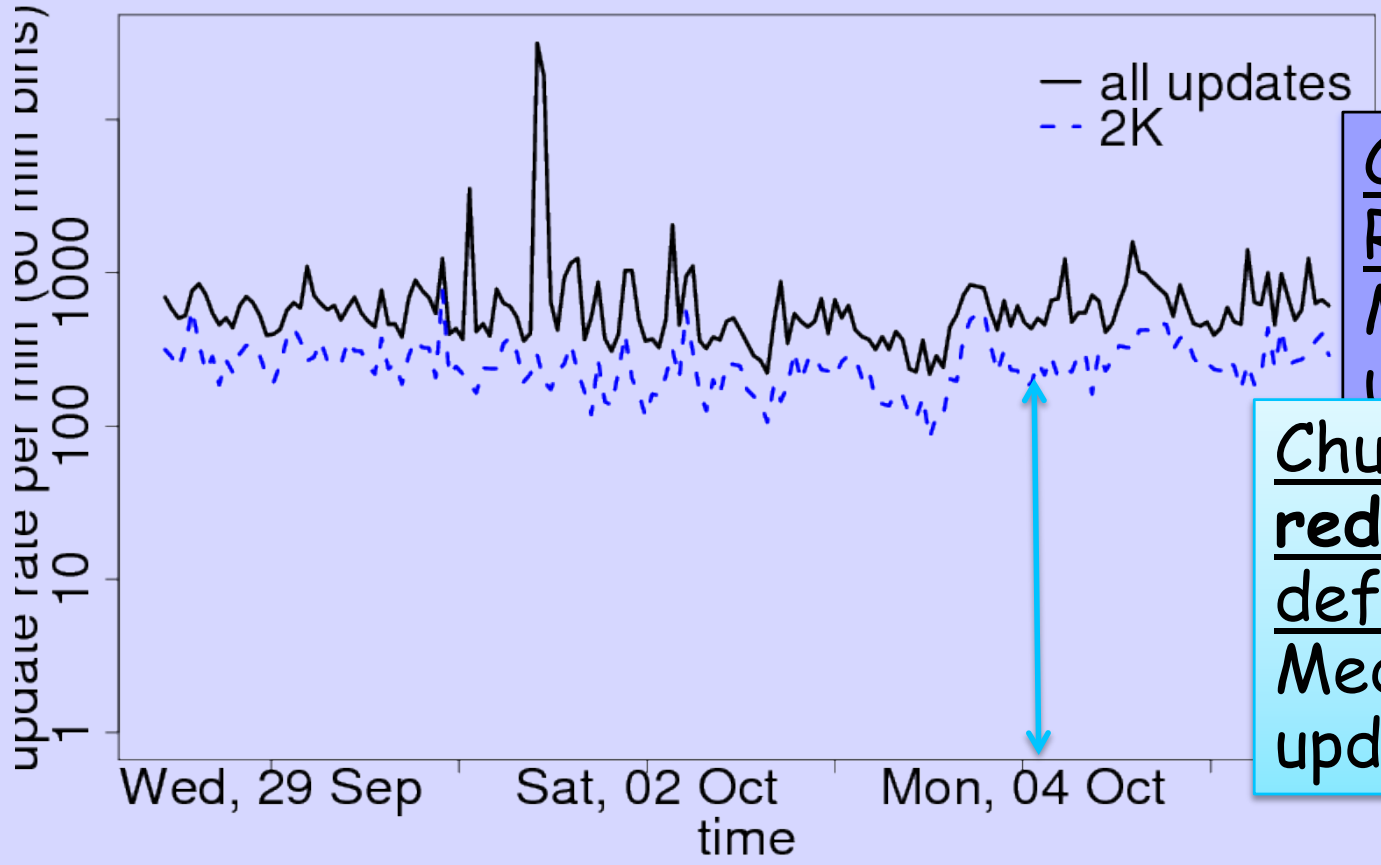
Measurement Details

Modified code in r0
- No actual damping
- Penalty assigned to routes
- Very high maximum penalty



Retrieve damping counters
Time between snapshots varies
average time: 4-5 min
longest time: 45 min
95th percentile: under 10 min

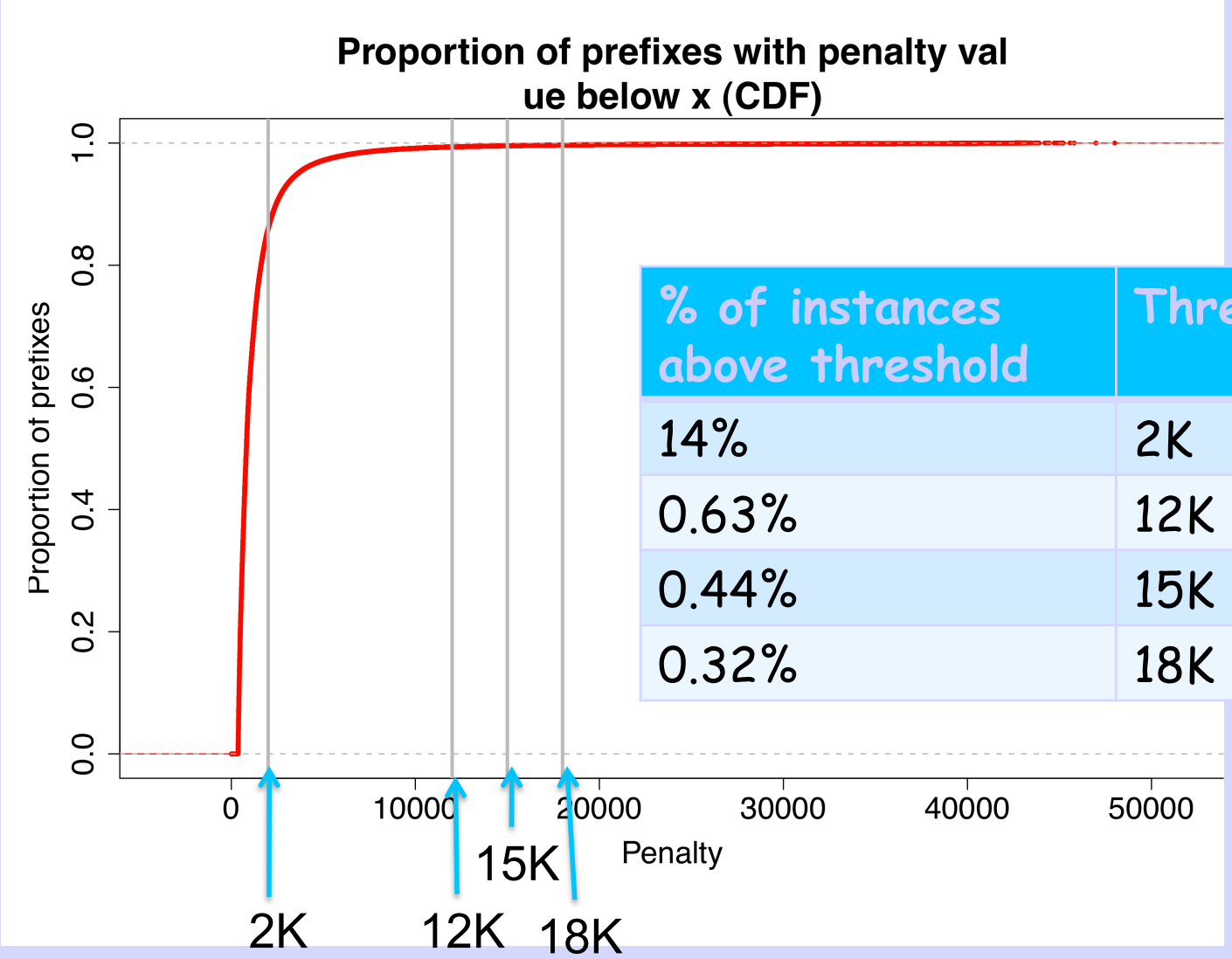
Today's Default Does Cut Churn



Churn wo RFD
Median: 525 updates/min

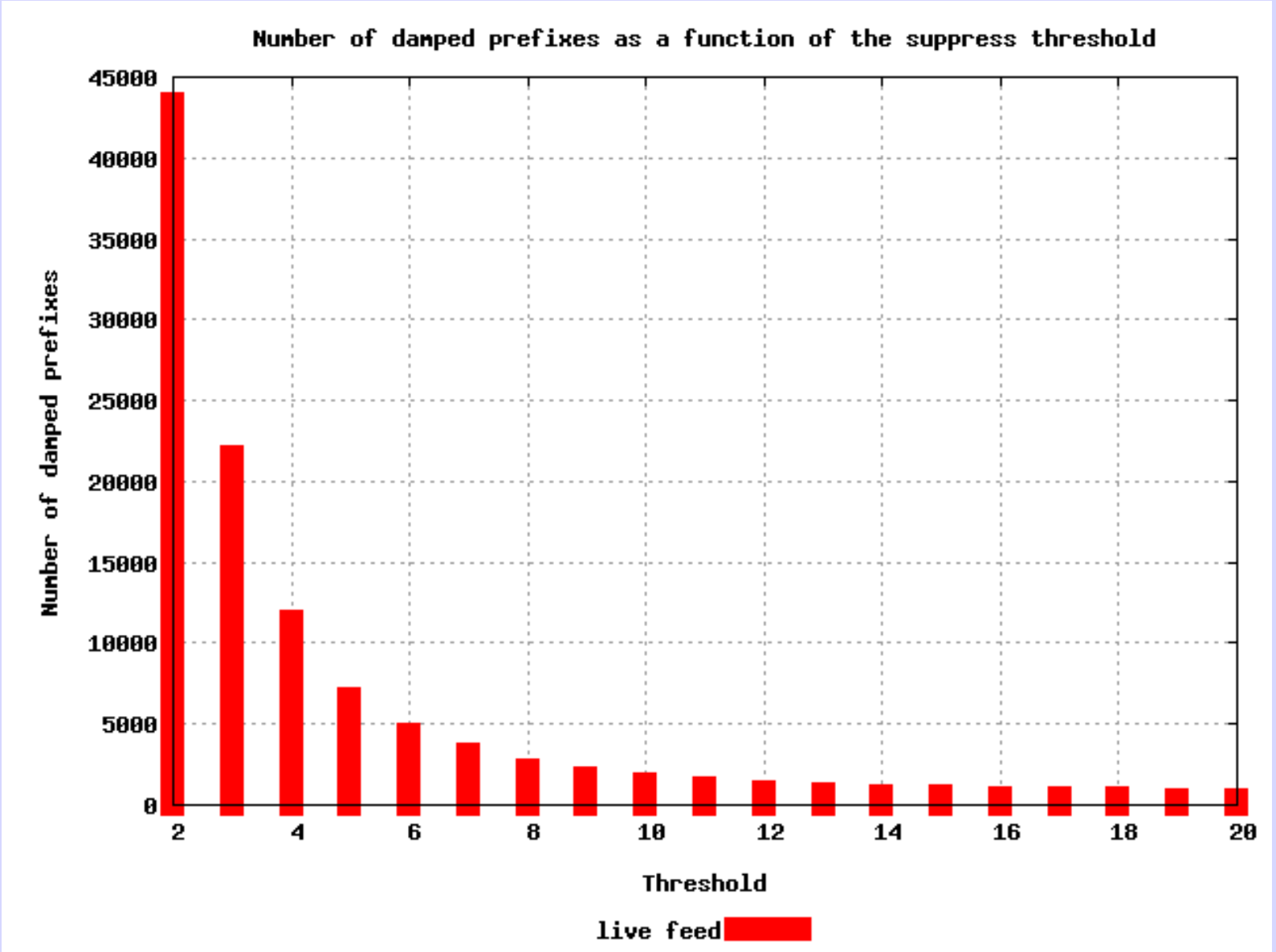
Churn **reduction** with default RFD
Median: 247 updates/min

Too Much - It Kills Mice

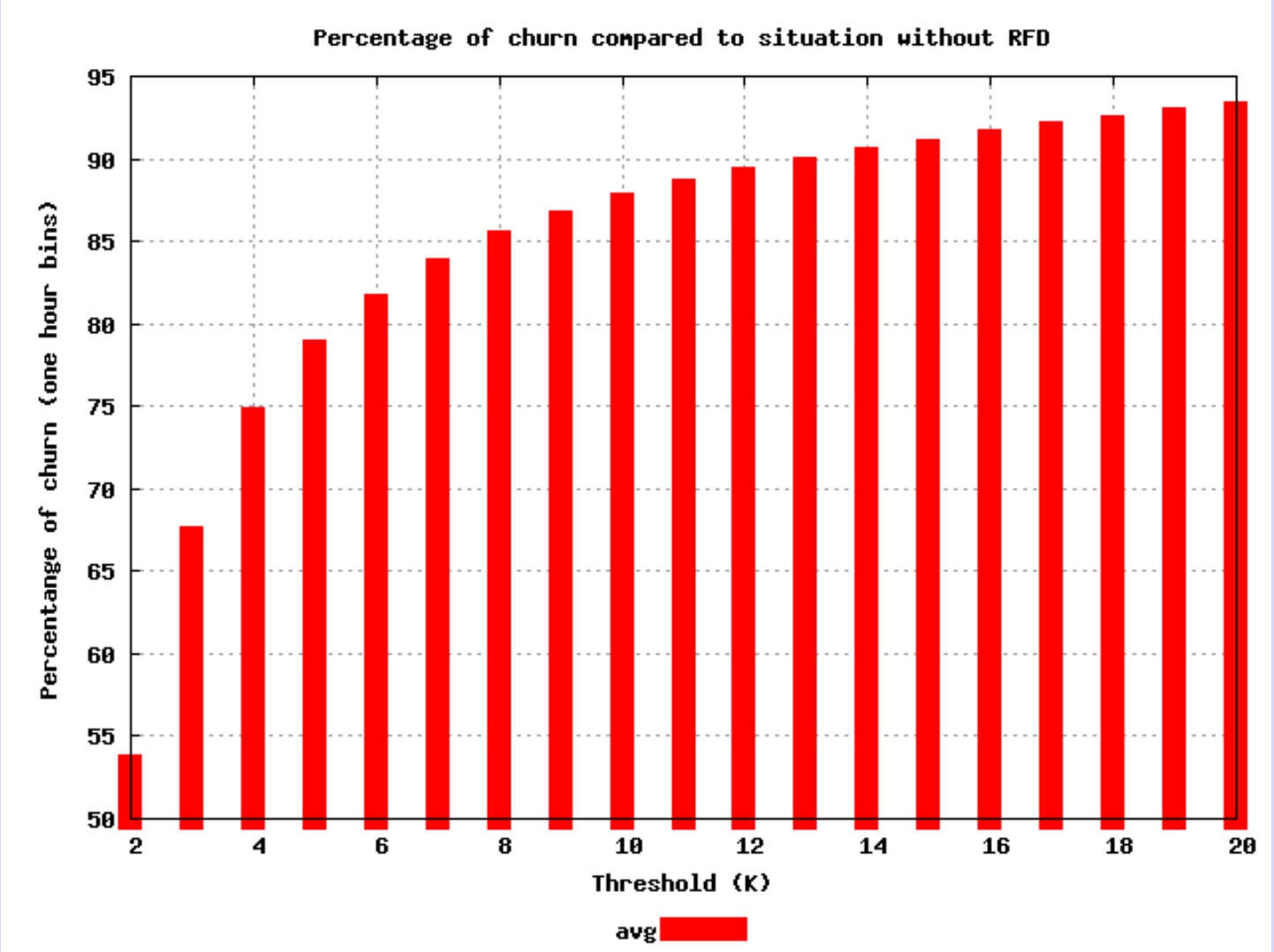


% of instances above threshold	Threshold
14%	2K
0.63%	12K
0.44%	15K
0.32%	18K

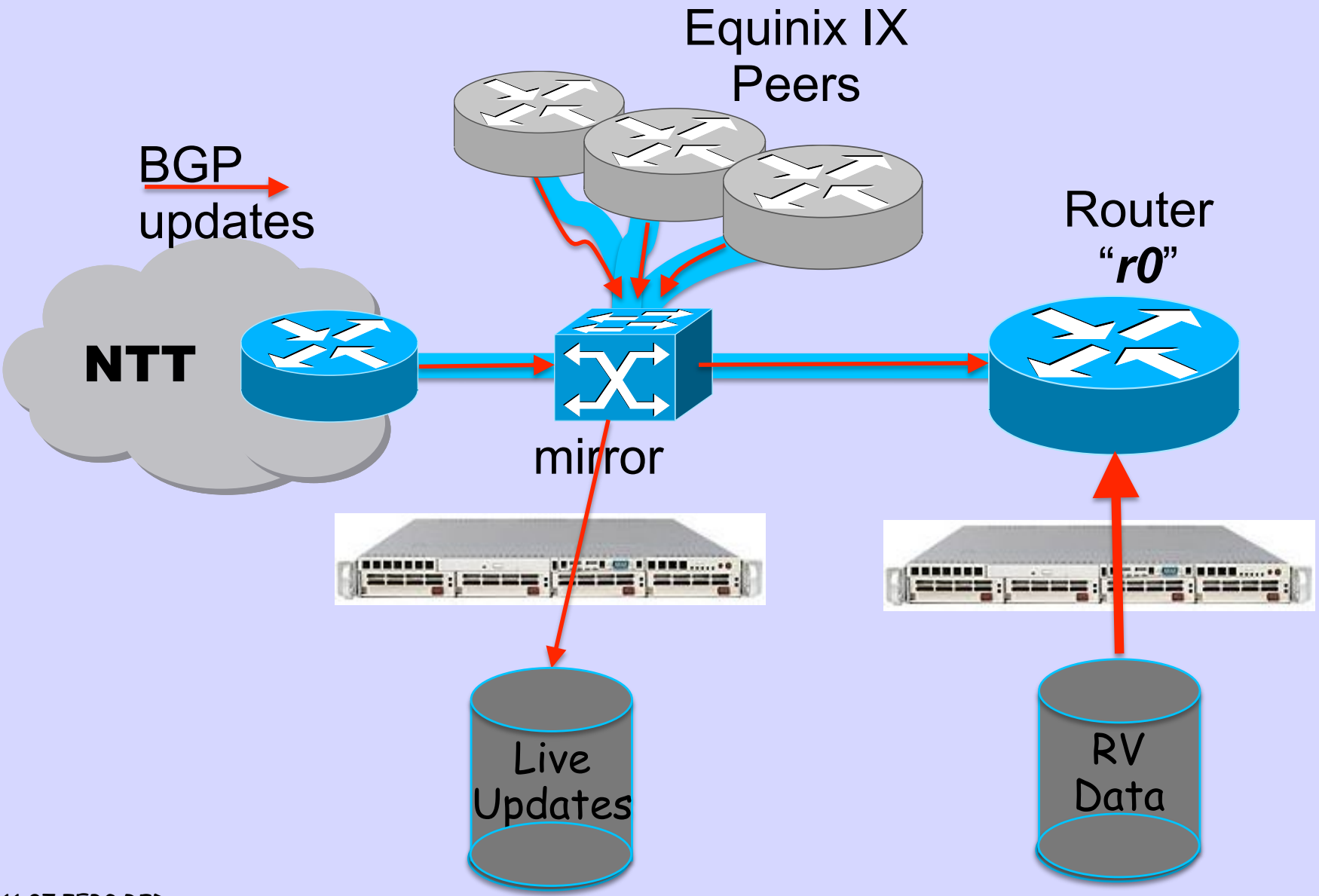
But We Can Kill Many Less



While Reducing Churn



Checking Topo Dependence



So …

- Current RFD settings are far too aggressive
- As a consequence RFD is often turned off
- Raise the suppress threshold
  - Router implementations raise max to 50k
  - Tune parameters to 6-15k