

Path Aware Networking: Obstacles to Deployment

Updates since Research Group requested publication

Spencer Dawkins

Reviews and Comments since leaving PANRG

- [-18](#): *Added ECN contribution and Lessons Learned for Martin Duke*
- [-17](#): Comments from Adrian Farrell, Benjamin Kaduk, and Rob Wilton
- [-16](#): Comments from Erik Auerswald
- [-15](#): Comments from Dave Oran (added section on “Future Work”)
- [-14](#): Comments from Mallory Knodel (mostly significant restructure)
- [-13](#): Addition of research group consensus statement
- [-12](#): Publication requested by Jen Linkova as document shepherd

***This meeting is the last stop before publication
Please don't be shy (here or on mailing list!)***

What might surprise you

- Martin Duke asked “why not ECN?” during IESG conflict review
 - “Nobody contributed a section on ECN”, but that was a lame answer
 - We aren’t covering everything, but we want to cover all the lessons
 - ECN actually DID have “lessons learned” that weren’t covered elsewhere
 - Spencer wrote a section on ECN and updated the Lessons Learned
 - [Sally Floyd’s ECN page](#) is still active and gave me what I needed
- So, ECN is now in [-18](#), submitted on 8 March (Monday of IETF 110)
 - [Text](#) appeared earlier, on PANRG mailing list 14 February

What was different about ECN

- The proponents of ECN did so much right - lessons from our doc
 - They recognized the need to support incremental deployment
 - They considered the impact on router throughput
 - They considered trust issues between end nodes and the network
- They didn't anticipate that routers would crash with nonzero ECN bits
 - People who had turned ECN on, turned ECN off to protect routers
 - People who turned ECN off had little incentive to turn it BACK on
 - That logjam can persist for a decade or two

*It is REALLY hard to recover from some missteps!
"You get one chance to get it right"*

So, my questions about ECN in -18 are

- Did we **Do The Right Thing** by including this contribution?
- Is there a better way to describe the ECN lesson than “**one chance**”?
- **Is that lesson “invariant”?**
 - “well-understood and likely to be applicable for any PAN solution”
- Suggested path forward for ECN addition in -18
 - **Comments due on PANRG mailing list in two weeks** - March 26
 - Spencer submits -19 reflecting comments for final approval by Colin

Does this work for the Research Group?

Questions and Comments?