

Path Aware Networking: A Bestiary of Roads Not Taken (draft-dawkins-panrg-what-not-to-do-01)

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Things to remember about this draft

- This draft was an outcome of the first PANRG meeting at IETF 99
 - "We keep encountering the same problems. We should write them down"
- Don't describe every idea, but capture every lesson
 - There is no shame in describing your learning experience!
 - This stuff was research, even if we **were** trying to engineer it in the IETF
- Please contribute subsections from your own experience
 - Please send github pull requests to do that
 - <https://github.com/panrg/draft-dawkins-panrg-what-not-to-do>
 - Requested format for contributions is in Section 3 of the draft
 - Please send comments on draft contents to the mailing list

Status of draft-dawkins-panrg-what-not-to-do-01

- Update -01 submitted prior to IETF 102
- Added pointers to IAB documents on protocol design and adoption
 - Not specific to Path-aware Networking, but worth reading
- Section 2 (Summary of Lessons Learned) builds on new contributions
- Now includes contributions on
 - Integrated Services (IntServ), provided by Ron Bonica
 - Quick-Start TCP, provided by Michael Scharf
 - Triggers for Transport (TRIGTRAN), mostly unchanged from -00
 - Shim6, based on input from Erik Nordmark
- I do want to get these descriptions right. Please send corrections!

Summary of "Summary of Lessons Learned" in -01

- Benefits of adoption must be big enough to overcome inertia
- If you can't trust middleboxes, middleboxes can't help you
- Benefits must be big enough for operators to justify deployment
- Current operational practices can prevent deployment of good ideas
- Per-connection state in intermediate devices is an impediment
- Increasing distance from sources makes path information less useful
- Many applications don't know things they need to tell PAN transports

Spencer's understanding of where the goalposts are

- I'd like for this document to be useful advice from PANRG to IETF
 - IETF developed these protocols that were not implemented and deployed
 - There's no reason to think IETF will not "learn these lessons" again
 - So, what other guidance can we give to the IETF?
- I'd like for this document to be useful advice to PANRG
 - [Open Questions in Path Aware Networking](#) to guide PANRG research
 - This document could help identify other open questions to guide PANRG
 - So, what other guidance can we give ourselves? :-)

What Next? Questions

- Are there more Path Aware Networking lessons to document?
- Are there more places to look for lessons? I'm looking at
 - NSIS - Martin Stiernerling to provide contribution
 - K. Nakauchi and K. Kobayashi. An explicit router feedback framework for high bandwidth-delay product networks. *Comput. Netw.*, 51, May 2007
 - D. Mochinaga, et al, "i-Path: Improving Path Visibility for the Future Internet" ,
12th IEEE/IPSJ International Symposium on Applications and the Internet, July, 2012

What Next? Clues

- Is additional work on this document valuable?
- Is adoption by the Research Group valuable?