IETF 116 dinrg
30 March 2023
Effects of Internet Consolidation
draft-mcfadden-cnsldtn-effects-00
Motivation

- Three key points:
  - Internet protocol design has demonstrably real effects on centralization
  - There is a key difference between centralization and consolidation
  - Centralization has changed the architecture of the Internet
Need to Acknowledge

- This draft acknowledges
  - That – through the pandemic and afterward – there has been a lot of literature on this topic
  - Some of it at the IETF, some at the IRTF and some in other forums
  - But, it is hard to miss the fact that this is a topic of significant interest to a broad community – not just engineers and operators
A key difference for the ongoing discussion
- Decentralized technology "by itself" does not guarantee decentralized outcomes
- Important for dinrg and its charter
- Consolidation through economic choices causes the outcome to be a centralized way of building Internet architecture and, thus, a centralized market with limited choices of technical and service
Centralization as an Outcome

- Centralization can be an outcome
  - Of economic reality
  - Of protocol choices
  - Of engineering efficiency and reality (see bullet one)
Centralization and Architecture

- Draft argues that centralization changes architecture
  - Possibly not a necessary outcome
  - But true in the recent evolution of the Internet
  - Most noticeable in the change to (the end of?) the end-to-end principle
  - Protocols: the emergence of intermediaries (OHAI, Privacy Pass) – attempts to balance the good (privacy, security) with further potential centralization – “privacy partitioning”
  - Architecture? More research in IRTF? IAB?
Case Studies in Centralization

- Draft discusses specific case studies
  - DNS over HTTP
  - eSNI – encrypted Server Name Indicator
  - OHTTP and OHAI
Finally

- Reflecting on the fact that there is quite a bit of research and writing here
  - Implications for architecture
  - DINRG charter
  - Implications that move beyond research (IRTF) to protocol design (IETF)
  - Some authors argue that protocol design cannot change economic events
Thanks

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