

IETF 116 dinrg

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Effects of Internet Consolidation
draft-mcfadden-cnsldtn-effects-00

Internet Engineering Task Force
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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

Centralization or Consolidation?

- 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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