

# Decentralized Internet Infrastructure Research Group **Charter Discussion**

IETF-116  
2023-03-30

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# DINRG History

- Started in 2017, at the peak of blockchain hype cycle
  - Lots of interest from the community in doing “something with blockchain” in the IRTF
  - Decided to start a research group to investigate decentralization opportunities and validate applicability of “decentralization tech” to Internet Infrastructure
- Investigated different types of contributions
  - RPKI alternatives with ***permissioned*** blockchains
  - Mesh networks with decentralized incentive/compensation on ***permissioned*** blockchains
  - IPFS, federated network file-sharing (Mastodon etc.)
  - Stellar Consensus Protocol (SCP)
  - GNU Name System
  - Decentralized/Self-Sovereign Identities

# Pivot to Internet Centralization

- First DINRG phase helpful to gain understanding of applicability and constraints of certain technologies
  - Most contributions rather focused on point solutions
  - Internet applicability not always intended
- *Systematic analysis of Internet Centralization* became more interesting
  - New threat models
  - Technical vs. economic root causes
- Significant interest in IETF/IRTF community
  - IAB Workshop on Design Expectations vs. Deployment Reality in Protocol Development

# 2021 DINRG Workshop Summary

- The goal: articulating the root causes for Internet consolidation
- Observations:
  - Observation from the history: Economy of scale drives consolidation, resulted in centralized control over industry sectors
  - Internet industries today: followed the footstep of the past giants
  - Internet centralization started with companies investing into providing needed new services
  - Proliferation of free services  $\Rightarrow$  surveillance economy
  - Networking started from dominance of carriage; Over time the locus of value and money shifted up the protocol stack
  - Why early decentralized apps got consolidated: apps started as service provided to local users; Once become revenue-generating businesses: economy of scale drives towards consolidating all
- Noticed two major contributing factors to consolidation
  - Driven by Economy of Scale, applications got Centralized
  - Security Threats Further Intensified Centralizationin the absence of regulation

# DINRG Re-chartering: efforts going on over last two years

- Working on identifying & mitigating Internet centralization
- Evolving the group to become a focal point for collecting all inputs and organizing discussions around the area of Internet (de)centralization
- To match the group efforts to its name and charter:
  - change the name to “**D**ecentralization of **I**nternet Research Group” (DINRG)
  - revise/simplify the charter

# DINRG's main objectives include the following:

(as pointed to the DINRG mailing list earlier)

- Measurement of Internet centralization and the consequential societal impacts;
- Characterization and assessment of observed Internet centralization;
- Investigation of the root causes of Internet centralization, and articulation of the impacts from market economy, architecture and protocol designs, as well as government regulations;
- Exploration of new research topics and technical solutions for decentralized system and application development;
- Documentation of the outcome from the above efforts; and
- Recommendations that may help steer Internet away from further consolidation.

# Feedback on Mailing List

- Good: It's clearer and more concise on the one hand, and it doesn't mention specific technologies on the other.
- Disconnecting from perceived single foci, like blockchain, is good since there is so much more to decentralization than the application of a single technology (group).
- Should not prevent us bringing dedicated tech but also arch/design examples into the discussions as long as the decentralization aspect is being suitably brought out.
- A fair few technical solutions aimed at or improving decentralization are not really ideal candidates for any single WG, but should be introduced to many. DINRG can help in this by being a collection point for these.
- Blockchain and Internet Centralisation— are not enough alike to justify a simple recharter the DINRG

# Feedback from IAB Review

- Think about how exactly we want to achieve these objectives
- Develop specific approaches to engage the broader research communities
- (IAB members in the room: please help add any missing points here)



# Some Questions to Discuss

- Balance between assessment of existing consolidation and constructive work on decentralization solutions
  - Synergies between the two?
- Reaching out to research communities: specific steps?
  - identify topics to writeup to share with the broader community
    - e.g. submitting 2021 workshop report to ACM CCR
    - Submitting our gained understanding to ANRW (due 5/12/23)e
    - identifying topics to adopt to RG documents
- What would make our ideal outcomes and products
  - Goals by IETF 117?
- Your suggestions: