

ICN Research Challenges

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Document Purpose

- **WHY**
 - Problems and pain points in today's networks
- **HOW** can ICN help
 - Fundamental ICN concepts
- **WHAT** to do in ICNRG
 - Research challenges, important topics
- Possible **RESULTS**
 - Impact on IETF work

Structure

1. Introduction
 - Example pain point, example ICN solution, brief concept overview
2. Problems with information distribution today
 - Inefficiencies, security issues
3. ICN Terminology and Concepts
 - Receiver-driven communication model based on named data objects (NDOs) as a first-order network service
4. Research Challenges
 - naming, security, routing, name resolution, transport, caching, interconnection, management, mobility management
5. Impact on IETF work
 - Anticipated changes to Internet architecture and protocols, relation to existing work (e.g., CDNI)

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Summary of Changes

- new text on Delivering data objects from replicas and other changes in security section
- new text on Staleness Detection of Cached NDOs (for caching, sec. 4.7.4)
- security considerations point to security section in text
- many editorial fixes

TODO

- Section pending on **Link to and Impact on IETF Technologies**
 - Intended to document possible impact to IETF technologies
 - Candidates: HTTP(bis), CDNI, P2PSP, ALTO, ...
 - Probably better to make this a dedicated document
- **Next steps**
 - Remove impact section -- work on this later as a standalone document
 - Re-publish as draft-icnrg-challenges
 - Go for open and independent RG review prior to IETF 90