

IETF – INTAREA WG

<https://datatracker.ietf.org/doc/draft-jia-intarea-scenarios-problems-addressing/>

<https://datatracker.ietf.org/doc/draft-jia-intarea-internet-addressing-gap-analysis/>

Internet Addressing - Problem Statement and Gap Analysis

IETF 113 – Vienna + Online

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What did happen after IETF 112 + Side meeting

Side Meeting fulfilled its purpose: Jumpstart a **wider discussion** carried over to the mailing list – It did happen **beyond expectations**

- Formulated 3 questions:
 - **What exact features do we want from the Internet?**
 - **Where/How is the features innovation happening?**
 - **What is an address anyway?**
- The 3 initial threads forked in several sub-threads and spilled to other mailing lists
 - Arch-d, ICNRG, COINRG
 - Including triggering architectural discussions
 - ~ 500 emails just on the INTArea (and counting...)
- We tried to summarize the discussion (see next 3 slides)
 - Discussion often continue after the summary
- Worked to incorporate all outcome of discussion (see after the next 3 slides)
 - This included further private email exchange for clarification
 - Basically asking clarification to email authors

Welcome onboard: Laurent Toutain, Abraham Y. Chen, Dino Farinacci

What exact features do we want from the Internet?

- Summary of the discussion: <https://mailarchive.ietf.org/arch/msg/int-area/AXk68NczR6PVcbLWSVDu6MR35SI/>
 1. Always-On
 2. Transparency
 3. Multi-homing
 4. Mobility
 5. Security and Privacy
 6. Performance
 7. Kernel
 8. Others
- This has evolved to the new Section 3 in the PS document
 - And improved/added text in several other parts of both documents

Where/How is the features innovation happening?

- Summary of the discussion: <https://mailarchive.ietf.org/arch/msg/int-area/wsWJxAyHStfwaWBpNRGFNfIQ8R4/>
- **The " where" is a 2-dimensional space:**
 - Horizontal
 - Vertical:
 - Horizontal vs Vertical Innovation
- **How much unique and globally routable an address should be?**
- **Address privacy**
 - This topic comes as a relevant in all questions
- **This has evolved to the new Section 5 in the GA document**
 - **And improved/added text in several other parts of both documents**

What is an address anyway?

- Summary of the discussion: <https://mailarchive.ietf.org/arch/msg/int-area/ZewtKjh0hcF4sG6qOXUES6y-jDA/>
- **This particular discussion went beyond:**
 - Beyond the draft submission cut-off date
 - Beyond INTArea mailing list (mostly to architectural discussion)
- Scope of “ephemeral addresses”
- IP address is a token that helps the network determine which egress interface
- how much of an ephemeral nature we see in the relations between a client and an ingress
- Ephemeral nature is purely one between the client and DC-internal service
- Address field in a packet is an opaque instruction that is looked up in some large table and causes the forwarder to take some set of actions that are referenced by the table
 1. Is it a one-to-one mapping, leading to unicast choices?
 2. Is it a one-to-many choice?
 3. Is it a one-out-of-many-possible choice, which covers the anycast case?
- Is the choice in item 3 determined via routing, falling back to option 1 as a result of delivery, or is it random over all choices possible or using some other scheduling mechanism?
- **This has evolved to the important changes in Section 5 in the PS document**
 - **And improved/added text in several other parts of both documents**

Pro...S Main Changes

- **Two new sections:**

- Sec. 2.7: Communications protecting privacy
 - TBC
- Sec. 3: Desired Network Features
 1. Always-On
 2. Transparency
 3. Multi-Homing
 4. Mobility
 5. Security & Privacy
 6. Performance
 7. Availability, Reliability, Predictability
 8. Do not harm
 9. MTU

- **Other important changes:**

- Sec. 4 Issues in Addressing
 - New part on “Hampering Privacy”
- Sec. 5 Problem Statement
 - Included input from discussion on Arch-d (what is an address anyway)

GA Main Changes

- **One new section**
 - Sec. 5: A System View on Address
 - Horizontal: Internet edge vs core
 - Vertical: at which layer of the protocol stack
 - Horizontal vs Vertical Innovation
- **Other important changes:**
 - Section 3.1 Length Extension
 - Partially rewritten to improve clarity
 - Section 3.1.1.3 Examples (of Shorter Address Length)
 - Added discussion on SCHC
 - Section 3.1.2 Longer Address Length
 - Almost completely rewritten
 - Added EzIP example
 - Section 3.2.2.3 Examples (of Authenticated Address Identity)
 - Rewritten self-certified addresses example
 - Sec 3.3 Semantic Extensions
 - Added discussion on uniqueness and global routability
 - Sec. 8 Conclusions
 - Adding discussion on addressing in support of permissionless innovation

Status and Next Steps

- The content of the documents is:
 - **Problem Statement:** Provides example scenarios that the existing Internet addressing place is a potential hindrance for Internet service provisioning
 - **Gap Analysis:** Investigate the properties of Internet Addressing, their extensions, identifying gaps that have been filled but also new issues introduces
- But the original **purpose** of the documents was to **bring the community to discuss addressing**
- Despite a difficult start **current documents contain the IETF community input**
 - various facets and opinions gathered on the mailing list discussions
 - the side meeting during IETF 112

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This a Documented Community Effort



Worth thinking about WG adoption



Worth Thinking about Next Steps beyond These Drafts?
(Community Discussion Needed)

THANKS!

QUESTIONS? / COMMENTS?