COIN
Computing in the Network

Jeffrey He, Eve M. Schooler, Marie-José Montpetit (J/E/M)

IETF 111 – Virtual SF

July 26th, 2021

Note Well

This is a reminder of IETF policies in effect on various topics such as patents or code of conduct. It is only meant to point you in the right direction. Exceptions may apply. The IETF's patent policy and the definition of an IETF "contribution" and "participation" are set forth in BCP 79; please read it carefully.

- **By participating in the IETF, you agree to follow IETF processes and policies**

- If you are aware that any IETF contribution is covered by patents or patent applications that are owned or controlled by you or your sponsor, you must disclose that fact, or not participate in the discussion

- As a participant in, or attendee to, any IETF activity you acknowledge that written, audio, video, and photographic records of meetings may be made public

- Personal information that you provide to IETF will be handled in accordance with the Privacy Policy.

- As a participant or attendee, you agree to work respectfully with other participants; please contact the ombudsteam if you have questions or concerns about this (https://www.ietf.org/contact/ombudsteam/)

Note Well - Policies
https://ietf.org/policies

Definitive information is in the documents listed below and other IETF BCPs. For advice, please talk to WG chairs or ADs:

- BCP 9 (Internet Standards Process)
- BCP 25 (Working Group processes)
- BCP 25 (Anti-Harassment Procedures)
- BCP 54 (Code of Conduct)
- BCP 78 (Copyright)
- BCP 79 (Patents, Participation)
- https://www.ietf.org/privacy-policy/(Privacy Policy)

This session is being recorded
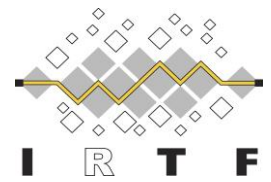
Goals of the IRTF

- The Internet Research Task Force (IRTF) focuses on longer term research issues related to the Internet while the parallel organisation, the IETF, focuses on shorter term issues of engineering and standards making

- **The IRTF conducts research; it is not a standards development organisation**

- While the IRTF can publish informational or experimental documents in the RFC series, its primary goal is to promote development of research collaboration and teamwork in exploring research issues related to Internet protocols, applications, architecture, and technology

- See "An IRTF Primer for IETF Participants" – RFC 7418

Administrivia

- Meetecho:
  - https://az.conf.meetecho.com/conference/?group=coinrg
  - Automatic Bluesheets
  - Please also:
    - Ensure your **video is off and wear headphones if you can**
    - **Keep yourself muted** unless you are speaking
    - We will monitor both the **chat and the queue for questions**

- Live Minutes:
  - CodiMD: Integrated into Meetecho   (Please collaborate!)
  - https://codimd.ietf.org/notes-ietf-111-coinrg

- Remote participation:
  - Jabber: xmpp:coinrg@jabber.ietf.org?join

- Mailing list:
  - coin@irtf.org
  - To subscribe: https://www.ietf.org/mailman/listinfo/Coin

- Meeting materials:
  - https://datatracker.ietf.org/meeting/111/session/coinrg

Agenda

Chair updates (J/E/M) - 5 mins

COIN related activities

1. Piccolo use cases: risk monitoring and smart factory – (Philip Eardley) - 20 mins
   - https://piccolo-project.org/
2. A Preliminary Summary of the Dagstuhl CFN seminar: a teaser -- (Dirk Kutscher) - 20 mins
   - https://www.dagstuhl.de/en/program/calendar/semhp/?semnr= 21243

Theme: COIN Use Cases

3. BT, Huawei & Cambridge University project on Compute First Networking -- (Dirk Trossen) - 20 mins
   - slides-111-coinrg-compute-first-networking-use-cases
4. Programmability in Mobile Virtual Networks -- (Xavier de Foy) - 20 mins
   - slides-111-coinrg-4-p4-by-tenants-in-mobile-nets-00
   - draft-defoy-coinrg-p4-by-tenants-in-mobile-nw
5. "Store Edge Networked Data" (SEND), a novel framework for in-network storage management realized through data repositories deployed at the network edge -- (Chris Nicolaescu) - 20 mins
   - Store_Edge_Networked_Data_(SEND):_A_Data_and_Performance_Driven_Edge_Storage_Framework

Lightning presentations of current drafts

6. Use case draft update -- (Ike Kunze) - 5 mins
   - https://datatracker.ietf.org/doc/draft-irtf-coinrg-use-cases/

RG topics

7. Announcements (related workshops, conferences etc.) - 5 mins
8. Next meetings - 5 mins

COIN Document Status

- **RG Documents**
  - draft-irtf-coinrg-use-cases : Use Cases for In-Network Computing
  - draft-kutscher-coinrg-dir: Directions for Computing in the Network (expired and needs update)
- **New draft**
  - draft-defoy-coinrg-p4-by-tenants-in-mobile-nw:
    Use Case for P4 Programmability by Tenants of Future Mobile Virtual Networks
- **Other Documents (update status needed from authors)**
  - draft-kunze-coinrg-transport-issues: Transport Protocol Issues of In-Network Computing Systems
  - draft-fink-coin-sec-priv: Enhancing Security and Privacy with In-Network Computing
  - draft-mcbride-edge-data-discovery-overview: Edge Data Discovery for COIN
  - draft-sarathchandra-coin-appcentres: In-Network Computing for App-Centric Micro-Services
  - draft-hsingh-coinrg-p4use: Use of P4 Programs in IETF Specifications
  - draft-hsingh-coinrg-reqs-p4com - Requirements for P4 Program Splitting for Heterogeneous Network Node
  - draft-defoy-coinrg-mobile-discovery: Impact of Mobility on Discovery in COIN
  - draft-fu-coinrg-joint-optimization-req : Requirements of computing and network joint optimization and scheduling
  - draft-li-coin-oam-framework: COIN Operation, Administration and Maintenance Framework
  - draft-liu-coin-differential-reservatio : Differential Computing Resource Reservation
  - draft-liu-coinrg-requirement: Requirement of Computing in network
  - draft-mcbride-data-discovery-problem-statement: Data Discovery Problem Statement

Presentations and Discussions

Announcements & Future meetings

- Upcoming:
  - Virtual CoNEXT workshop: "The Computer in the Network"
    - https://compinnet2021.hotcrp.com/
    - **Paper submission deadline: Sept. 20, 2021**
    - Workshop date: Dec. 7th, 2021
- Meetings
  - Interim in the October timeframe (?)
  - IETF 112 @ Madrid - virtual/hybrid (?) – Nov 6-12
  - Interim "virtually co-located" with CoNEXT workshop (?) – early Dec

Milestones @ IETF-111

Date	Milestone
Dec 2019 ✓	Capture the SoTA of the COIN landscape - _partly achieved_
Sep 2020 ✓	Articulate COIN challenges - _partly achieved_
Apr 2020	Discuss/catalog COIN requirements and implications for network elements (including network services, network SW stacks, network HW design, etc.) - _on going activity_
Apr 2020 ✓	Target COIN case studies, from architecture, implementation and use case standpoints – _drafts exist – on going activity_
Apr 2020 ✓	Apr 2020 Identify COIN network-related eco-system dependencies - _partly achieved_
Nov 2020	Work toward defining a COIN scope appropriate for the IRTF, within which new research, architectures, mechanisms and protocols can be proposed – _to do_
Nov 2021	**Milestone review for IETF 112 (proposed)**