

57th NMRG Meeting

IETF 106, Singapore

Session 2

Chairs: Laurent Ciavaglia, Jérôme François
Secretaries: Jéferson Campos Nobre, Pedro Martinez-Julia



Goals of the IRTF

The IRTF conducts research; it is not a standards development organization

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

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](#)

IRTF follows IETF policies

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.

As a reminder:

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

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)

Volunteers ?!

Minutes taker(s): ???

please use Etherpad: <https://etherpad.ietf.org/p/notes-ietf-106-nmrg>

Meetecho scribe(s): ???

Blue Sheets!

Please fill the **Blue Sheets**
and circulate them through the room

This is important to measure participation and plan proper
room size at future meetings

Session 2 - Agenda

1. Intro + NMRG recharter, Chairs, 5min + 5min Q&A
2. Artificial intelligence for networking and network for AI
 - 2.1 Adversarial Network Benchmarking, Andreas Blenk, - 15min + 5min Q&A
 - 2.2 AI activities in other communities
 - 2.2.a) ETSI ISG Experiential Networked Intelligence (ENI), Will Liu, 5min + 3min Q&A
 - 2.2.b) ETSI ISG Zero-touch network and Service Management (ZSM), Laurent Ciavaglia, 5min + 3min Q&A
 - 2.2.c) IEEE ETI for Network Intelligence (NI), Laurent Ciavaglia, 5min + 3min Q&A
 - 2.2.d) ITU-T FG on Machine Learning for Future Networks including 5G (ML5G), Vishnu RAM OV, 5min + 3min Q&A
 - 2.3 Network AI challenge
 - 2.3.a) Update on the NMRG activity on the AI challenge, Jérôme François, 6min + 4min Q&A
 - 2.3.b) Challenge proposition, Albert Cabellos, 6min + 4min Q&
 - 2.4 Wrap-up of Network AI side meeting, Chairs, - 5min + Q&A

Charter update

- Draft version will be available at:
<https://docs.google.com/document/d/14eHQALG95VHE5N-YIAwH6vriKFG2Wvl8d63TtugZLgU/edit?usp=sharing>
- Add “Research Activities” section (2017-2022)
- Umbrella text on the research agenda
 - Objective: to cover main research directions and their relationships
- Context:
 - complexification of networks (scale, versatility, heterogeneity)
 - → more automation, autonomicity needed
- Objectives
 - Towards zero-touch and **self-driving networks**
 - Assist and empower users with **intelligent/AI** techniques (guidance, recommendation, automatic actions...)
 - How user can handle the complexity of network easier? → e.g. **IBN**

IBN workplan 1/2

- Document the problem statement, design goals and challenges
 - Goal: describe the problem and solution spaces; identify the limits of current technologies and methods and derive the associated research challenges.
- Document fundamental concepts, background, and terminology
 - Goal: provide clarity and achieve a common understanding of the various concepts, definitions and terms of what constitutes an IBN system.
- Develop a taxonomy and document suitable means to express intents
 - Goal: categorize the different forms of intents and define what constitutes a “well-formed” intent; describe how an intent can be expressed and what can be expressed using an intent with means such as information models, grammars, and languages.
- Design and specify a common architectural framework comprising requirements, functions and techniques to realize an archetypal IBN system; describe the lifecycle and theory of operations.
 - Goal: determine the elementary functional blocks of an IBN system, their interactions, inputs and outputs; propose different techniques applicable for the different functions.

IBN workplan 2/2

- Study the integration and interoperability aspects of the proposed IBN architectural framework
 - Goal: enable the large adoption and applicability of IBN with existing and emerging technologies, and provide guidance on deployment considerations.
- Define appropriate validation scenarios and use cases describing concrete examples of intent expressions and functions
 - Goal: assess the quality and completeness of specifications and evaluate intent-based systems functionalities in experimental settings.
- Develop implementations and proof of concepts
 - Goal: demonstrate the feasibility of the proposed framework and its functions; detect potential design flaws, and provide a basis for interoperability evaluations.

Workplan for Self-driving networks and AI

- Review and document challenges
 - Goal: identify a roadmap for future research in the area of self-driving network and/or network artificial intelligence; and prepare future actions towards the IRTF (NMRG or other research groups), IETF and beyond.
- Form a relevant research community
 - Goal: gather the appropriate set of competencies to address the identified challenges

Next steps

- Your comments and feedback are most welcome!
 - Is the workplan aligned in what you want to see in NMRG?
 - Will you contribute some work items?
 - Talk/write to the chairs, post on the mailing list...
- Target approval by end 2019
 - Need your comments December 6th latest