

IETF 121, Dublin + Online NMRG 78th meeting - Session 2

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



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- See [RFC 7154](#) (Code of Conduct) and [RFC 7776](#) (Anti-Harassment Procedures), which also apply to IRTF

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](#)

Meeting useful links

- Materials:

<https://datatracker.ietf.org/meeting/121/session/nmrg>

- Meetecho:

<https://meetings.conf.meetecho.com/ietf121/?session=33171>

- Notes: <https://notes.ietf.org/notes-ietf-121-nmrg>

- Video recording: <https://www.youtube.com/user/ietf/playlists>

- Available post-meeting

NMRG this week

Side meeting on Network Digital Twin

- Monday 04/11 16:00-17:00
- Discussions to define possible orientations of the RG

Two sessions

- Thursday 07/11 13:00-15:00
- Friday 08/11 15:30-17:00: document updates, status, research agenda

One joint workshop with ESTI ZSM

- Saturday 09/11 09:30-17:00, Trinity College
<https://github.com/danielkinguk/nmrg-zsm-session>
- Discussions on the different views each group have on NDT, IBN, AI

Agenda

- Introduction, document status, RG activities, RG Chairs, 10 min
- AI-based network management
 - AI based network management agent (NMA), [draft-zhao-nmop-network-management-agent](#), Xing Zhao, 10 min
 - AI framework for network management, [draft-pedro-nmrg-ai-framework](#), Pedro Martinez-Julia, 10 min
 - Considerations of network/system for AI services, [draft-hong-nmrg-ai-deploy](#), Yong-Geun Hong, 10min
- An Evolution of Cooperating Layered Architecture for SDN (CLAS) for Compute and Data Awareness, [draft-contreras-coinrg-clas-evolution](#), Luis Contreras, 10 min
- Network Digital Twin: Concepts and Reference Architecture, [draft-irtf-nmrg-network-digital-twin-arch](#), Qin Wu, Mohamed Boucadair, Cheng Zhou, 10 min
- NMRG research agenda discussion, NMRG chairs, 30 min

RG activities

- (past) 1 virtual meeting on 3rd October 2024 to discuss research agenda
 - Next meetings
 - IETF 122, 17-21 March 2025, Bangkok
 - Interim meetings
 - Topic focused
 - Propositions for topics? → share with RG chairs, and on the mailing list
- Suggestions:
- Architectural considerations for future network management and operations
 - Towards Network digital twin “hackathon”
 - Data quality assessment

Documents

- **In IRSG poll**
Challenges and Opportunities in Management for Green Networking, draft-irtf-nmrg-green-ps
- **Going to IRSG review**
Research Challenges in Coupling Artificial Intelligence and Network Management, draft-irtf-nmrg-ai-challenges: 2nd last call concluded, all comments addressed
- **Going to RG last call**
Network Digital Twin: Concepts and Reference Architecture, draft-irtf-nmrg-network-digital-twin-arch: stable, good level of support expressed
- **RG document adoption**
 - Considerations of network/system for AI services, draft-hong-nmrg-ai-deploy: 8 positive feedback received in call for adoption, to be adopted as NM RG document
 - Use Cases and Practices for Intent-Based Networking, draft-kdj-nmrg-ibn-use-cases: Good consolidation of use cases, call for adoption on mailing list

Research agenda 1/2

https://notes.inria.fr/1AVPWFd5Tga6o_kXbFawYA

- General intro to highlight the three research directions:
 - Coupling of Artificial Intelligence (AI) and Network Management (NM)
 - Data-centric considerations while managing networks
 - Network Digital Twins (NDT)
- Open forum for new NM solutions, frameworks, architectures... for current and future networks
- One specific section for each theme: reduce the level of details for conciseness and ensure not bound to particular approach/solution

Research agenda 2/2

- **AI and Network Management coupling**
 - No limitations on solutions or use cases, highlight challenges already identified and discussed including “network for AI”
- **Data-centric considerations in Network Management**
 - Data accessibility, collection, semantics, usability, quality
- **Network Digital Twins**
 - Research approaches and demonstrators of NDT architecture **S** → identify missing concepts
 - Enabling technologies for twinning, accuracy and trustworthiness,, NDT composition and interconnection and its related management, the impact of the use of NDT for managing networks in the future
 - Practical research work: fostering hands-on research on NDT, inviting for volunteers □ hackathon, f2f interim/workshop co-located with conference ?
 - Exchange with working groups e.g. SIMAP (ex-Digital Map) in NMOP
- **Management of network sustainability**
 - Sustainability/green considerations are not NM-specific (e.g. GREEN WG, SUSTAIN RG proposal)
 - But managing the network as a whole can support better sustainability. → Research agenda refocused accordingly