NMRG Virtual Meeting
23 October 2019

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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.
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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)

Virtual Meeting Etiquette

If you want to speak/comment:

- type 'RH' (raise hand) in the Webex chat window

Respect the line i.e. speak when it's your turn

Stay to the point, be concise and precise

Agenda & Useful links

- Agenda
  - Status of the RG
  - Summary of October interim meeting in Roma and follow-ups
  - NMRG activities at IETF 106, Singapore, 15-22 Nov.
  - Open points/issues and next steps on IBN activity, e.g. architecture, use cases…
  - Network AI challenge
  - AoB (time permitting)

- Useful links
  - Agenda: https://datatracker.ietf.org/doc/agenda-interim-2019-nmrg-11-nmrg-01/
  - Materials: https://datatracker.ietf.org/meeting/interim-2019-nmrg-11/session/nmrg
  - Webex: https://ietf.webex.com/ietf/j.php?MTID=m0d89e692e2878e8670a6936b904d1c1c
  - Etherpad: https://etherpad.tools.ietf.org/p/nmrg-virtual-20191023

NMRG rechartering

- Still ongoing process
- Chairs will send a revised version prior to IETF 106
- Will be discussed during IETF 106
- Main points:
  - Updated description of research agenda, main research themes and their relationship
  - IBN work plan and milestones
  - Future directions

Future meetings plan

- **November 2019, IETF 106, Singapore**
  - 2 Regular sessions
  - Possible side-meetings in the morning to have focused discussions/work
  - Agenda under preparation (to be discussed today)

- **March 2020, IETF 107, Vancouver**
- **Monthly virtual meetings**
  - ~~December~~?
  - January
- **Colocated meetings and/or workshops with conferences in 2020**
  - Need to define the type of actions: introductory session to raise awareness and attract newcomers, NMRG meetings, scientific workshops
  - Potential candidates: NOMS (20-24 April), iPOP (last week of May), Networking (20-22 May), SRBC (25-29 May), euCNC (15-18 June), NetSoft (29 June-3 July)
  - Other proposals?

Adopting individual drafts as RG drafts

- Unlike IETF, no unique and documented procedure for RGs
- The proposed procedure is inspired by IETF WG procedure [RFC 7221]

- Criteria for adoption : scope + maturity (semantic and syntactic) + supportive team
  - *Is the topic of the I-D within scope for the working group?*
  - *Is the purpose of the draft sufficiently clear?*
  - *Does the document provide an acceptable platform for continued effort by the working group?*
  - *Is there strong working group support for working on the draft?*

  [RFC 7221]

  - Is the scope of the draft enough clear and not overlapping with other RG/WG drafts?
  - Is the scientific soundness of the draft satisfying? (quality of the scientific proposition, rigour of the method, impact)

  the measure of success is the quality and impact of the research results [RFC2014]

- Reminder: only informational or experimental RFCs produced by RGs

Procedure

0) Precondition: Update individual drafts as usual
- Retrieve comments from the group (mailing lists, meetings)
- Address comments and give feedbacks about comments (mailing lists, meetings)

·· Starts Here ··

1) Check criteria for adoption
- What?
  - Purpose / scope of the draft need to be clear (cannot be changed once adopted)
  - Scientific quality and impact
- How to continue the effort?
  - Content of the draft: evolution of the document must be already planned (based on received comment for example). the current content must enough mature
  - Workplan and milestones
- Who will work on the draft?
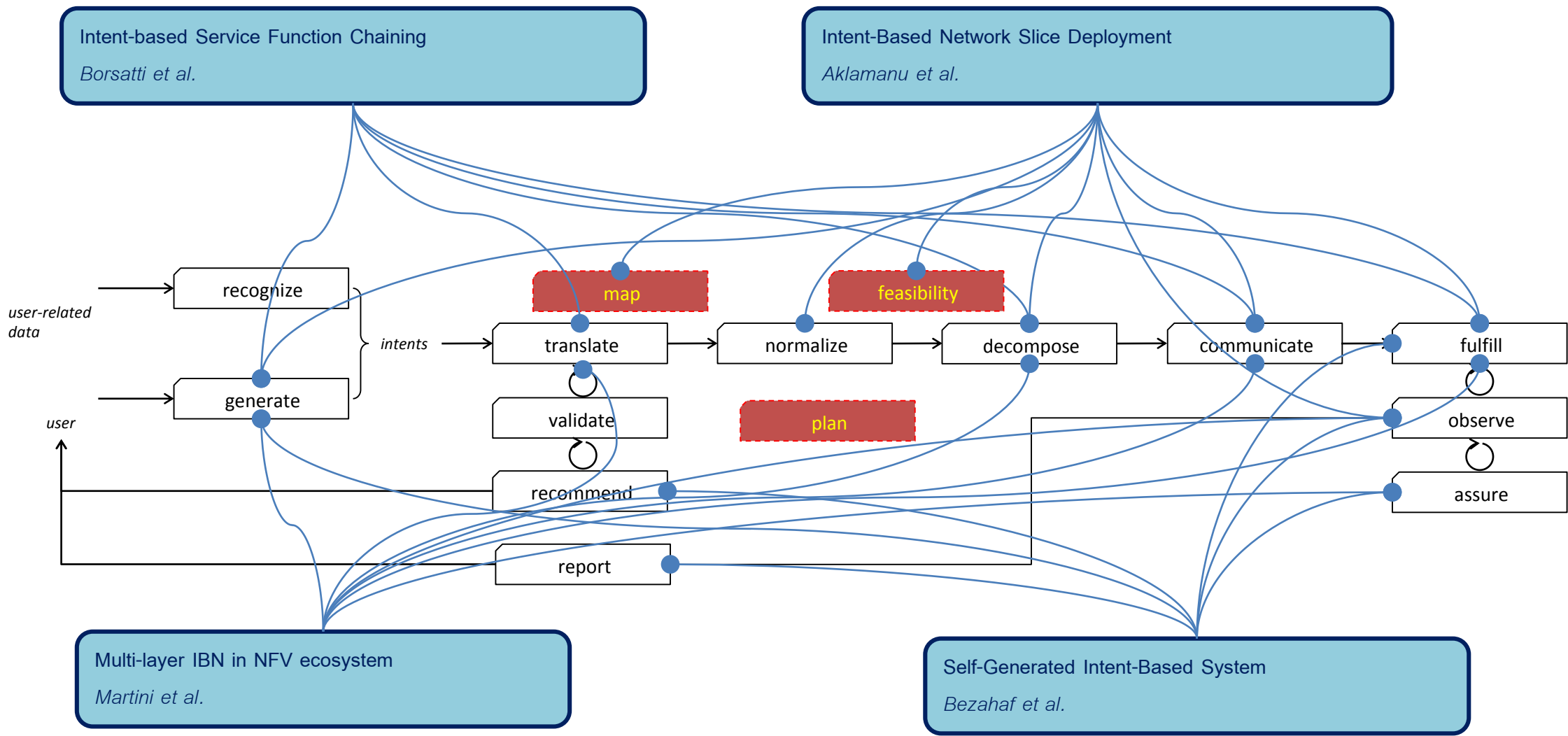 - commitment from existing authors

2) Request adoption
- Step 1: Present scope, content and workplan of the document + ask for support at meeting or on the mailing list
- Step 2: Chair will issue a "formal" call for adoption support on the mailing list and make the final decision

Report on Interim meeting at NoF 1/2

- 3-4 October in Roma
- Useful links
  - Materials: https://datatracker.ietf.org/meeting/interim-2019-nmrg-10/session/nmrg
  - Etherpad: https://etherpad.tools.ietf.org/p/nmrg-virtual-20191003
  - Minutes under preparation + video(s) to be shared

- Tutorial on IBN, presentation of IBN drafts, presentation of 4 IBN demos

- Some highlights of discussions:

  - Intent expression: standardized description or natural language

  - IBN system should expose its capabilities to the user

  - Validation is more syntactic and semantic vs. (mathematical) verification

  - In lifecycle: clarify what is normalization, need for new phase/functionality e.g. scheduling?

  - Forecasting based on telemetry and auto-adapt intent mapping accordingly (intent recommendation)

  - Intent decomposition/mapping using template-like models (e.g. OSM NSD) → how to abstract as much as possible such templates

Report on Interim meeting at NoF 2/2

- Follow-up activity
  - Meeting report to be published on IEEEXplore
  - Combination, integration of multiple demos together
    - Already some p2p contacts and intentions
  - IBN resource hub
    - Code repository on github?
    - + other resources on website? (articles, analysis, standards, presentations)
  - IBN tool data sheet and overall view
    - To be fed with authors' demo inputs
    - New demo descriptions to be added (open updates to github/website)
  - Mapping table: positioning demos with categories defined in draft-li-nmrg-intent-classification
  - Update of lifecycle based on demo mapping exercise and discussion

+ add other existing/known tools not presented at this meeting
e.g. NILE, Jacobs et al.

IETF 106, Singapore, Session 1

- Thursday 2019/11/21 10:00 – 12:00 (local time)

- Agenda focused on IBN
    - 1.1) Quick report on October interim meeting on practical aspects of IBN, and follow-ups
    - 1.2) Status and progress of active I-Ds
    - 1.3) Technical presentations and discussion on **(Call for presentations, deadline 31/10)**
        - Architecture and functionality
        - Use cases and validation scenarios
        - Techniques

IETF 106, Singapore, Session 2

- Friday 2019/11/22 12:20 – 13:50 (local time)

- Agenda
  - 2.1) NMRG recharter
  - 2.2) Network AI challenge
  - 2.3) Artificial intelligence for networking and network for AI **(Call for presentations, deadline 31/10)**
    - AI-based architectures (centralized/distributed AI, offline/realtime AI...)
    - Requirements to apply AI for networking and gap analysis
    - AI-enabled functional components for networking highlighting why do we need AI and if the specificities of network make the use of AI different than in other areas
    - Network technologies to support AI
    - Data models and datasets to be proposed for relevant use cases

- Invite people from other communities

IETF 106, Other activities

- Possible to have side-meetings
  - Unstructured time in IETF week agenda 8:30 – 9:45am
  - Topics?
    - Editorial sessions on existing / new drafts
    - Future hackathons preparation
    - Network AI challenge project consolidation
    - AI in NMRG / preparation of a consolidated view for session 2
    - …

Open points/issues and next steps on IBN activity

- Improving and maturing existing drafts for RG adoption

- Engage active discussion and development on other work plan items (architecture, functionalities, validation scenarios, etc.)
  - Allocate (virtual/side) meeting time and dedicated work session
  - Progress on documentation

- Continue developing practical aspects of IBN (tools and demos, hackathon projects, etc.)

- Raising awareness and (academic) research activity level (e.g. with dedicated workshops, tutorials, position and survey papers, etc.)

- Initiate discussion on areas/topics for potential standardization work

Status and progress of active I-Ds

- Any update on the following drafts?

  - Draft-clemm-nmrg-dist-intent-02, Intent-Based Networking - Concepts and Overview

  - Draft-li-nmrg-intent-classification-01, Intent Classification

  - Draft-sun-nmrg-intent-framework-00, An Intent-driven Management Framework

  - Draft-kim-nmrg-rl-05, Intelligent Reinforcement-learning-based Network Management

  - Draft-pedro-nmrg-intelligent-reasoning-00, Intelligent Reasoning on External Events for Network Management

  - Draft-bernardos-nmrg-multidomain-01, Multi-domain Network Virtualization, 2019-09-12,36 pages

- 2019-11-04 (Monday): Internet Draft submission cut-off