55th NMRG Meeting
ETS, Montreal
26 July 2019

Chairs: Laurent Ciavaglia, Jérôme François

Secretaries: Jéferson Campos Nobre, Pedro Martinez-Julia

I R T F

IRTF follows IETF policy ("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.
 As a reminder:

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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)

Useful links

Meeting minutes: https://etherpad.tools.ietf.org/p/nmrg-interim-20190726

Materials: https://datatracker.ietf.org/meeting/interim-2019-nmrg-07/session/nmrg

Webex:

https://ietf.webex.com/ietf/j.php?MTID=m81b3d749f415e5456d8161b1db4eedba

Agenda

9h30-10h - Welcome and coffee

10h-12h - Morning session
    . Introduction, Workshop Chairs (Faten and Laurent) ~5 min.
    . FlexNGIA: A Flexible Internet Architecture for the Next-Generation Tactile Internet, Mohamed-Faten Zhani ~25 min.
    . Working on intent examples

12h-13h - Lunch break

13h-14h30 - Afternoon session I
    . A word from Patrick Cardinal, Head of Department of Software and IT Engineering ~5min.
    . Intent examples (continued)
    . Architecture discussion

14h30-15h - Coffee break

15h-16h30 - Afternoon session II
    . Architecture discussion (continued)
    . Meeting conclusions, Chairs and participants

Supporting materials

Yesterday session slides
https://datatracker.ietf.org/meeting/105/session/nmrg

Virtual meetings presentations
https://datatracker.ietf.org/group/nmrg/meetings/

Intent Driven Networks - Challenges and Enablers (IM 2017)
https://datatracker.ietf.org/meeting/interim-2019-nmrg-07/materials/slides-interim-2019-nmrg-07-sessa-im-2017-intent-driven-networks-challenges-and-enablers

ANIMA questions (IETF 95)
https://datatracker.ietf.org/meeting/interim-2019-nmrg-07/materials/slides-interim-2019-nmrg-07-sessa-anima-intent-discussion

Intent based policy management (SDNRG IETF 95)
https://datatracker.ietf.org/meeting/95/materials/slides-95-sdnrg-1
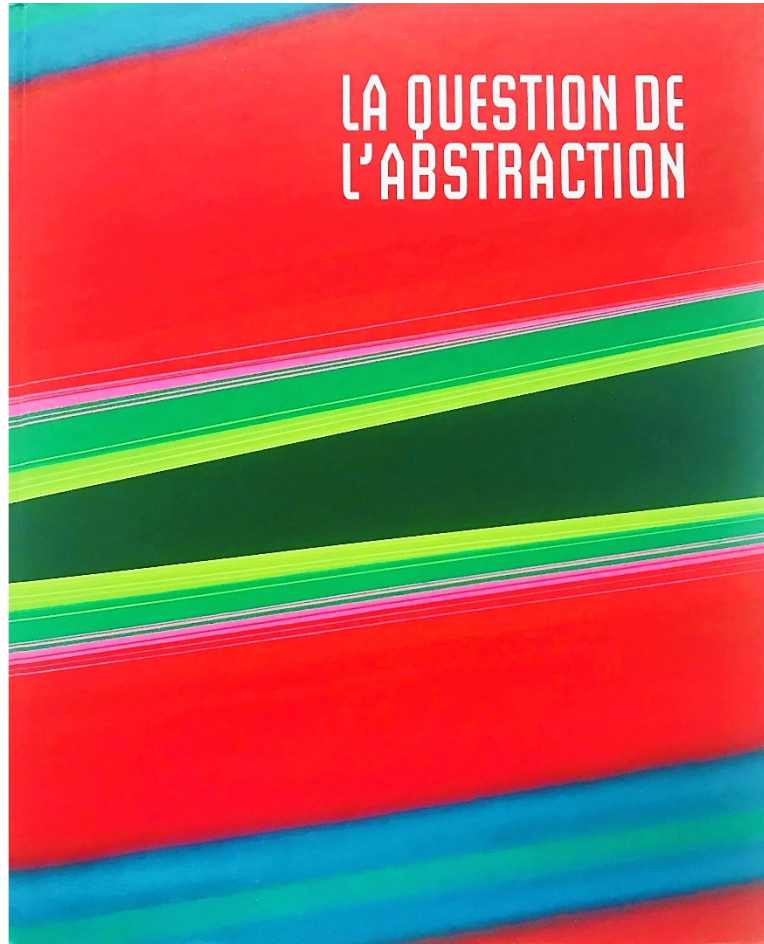
Intent Based Network Summit 2015
https://datatracker.ietf.org/meeting/interim-2019-nmrg-07/materials/slides-interim-2019-nmrg-07-sessa-intent-based-network-summit-2015

Web page resources e.g.
http://blog.ubicity.com/2017/06/intent-engines-and-orchestrators.html
http://blog.ubicity.com/2017/06/what-are-intent-engines-anyway.html

a sign of destiny...?!?

MUSÉE D'ART CONTEMPORAIN DE MONTRÉAL

Intent examples

- Invite each of the participants to think and propose one or more examples of intents.
- Run through a set of questions and "tests" to see if/how far we can go with the proposed intent examples:
  - Are some "parts" missing, incomplete, too approximative?
  - Are the functions we are thinking of in the architecture enough to transform the proposed intents to the required level of output (e.g. configurations),
  - are we missing some functionality to achieve the process or some capabilities to make the functionality complete, etc.
- What are the commonalities and differences we could identify between the different intent examples proposed, how does it help on the work of intent classification, is it consistent or points to aspects we have overlooked?
- Who are the actors/roles involved e.g. expressing intent, validating intent, mapping/translating/rendering, etc.
- Link examples to simple use cases or technologies to help us better grasp the exercise and help us validate the approach.

Intent Examples

- Intents are composed of: a functional and an operational part. The functional part consist in the expression of the business goal, the expected outcome. The operation part captures the performance parameters such as network/compute/memory, time, space/topology ; security ; availability, etc. Units, metrics and value/value ranges may also be specified.

- I don't know if cost or cost vs. x,y,z ratio should be considered in the intent expression.

- We can also consider aspect of logic and operators, semantics…

- getting towards such "structures" could help us defining guidelines how to write intents and systems to parse them without imposing a single format or language.

Intent Classes/Categories

- Characterize different categories of intent (and use the corresponding draft as a support):
  - e.g. business intents:

    end-users and operators: both have business intents for the system under study but have/are in different businesses.

Intent examples

Your intent here...

"Test" the intent

Flow of actions, Transformation/processing functions

Actors/roles

Scenario, Technologies

Structural elements

Intent examples

Customer C ask for connectivity 'XYZ'

Decomposition and mapping steps, and query the corresponding function

Different "audiences" at different intent refinement levels

e.g. the actor responsible for deriving the correct configuration from the intent expression ; the actor responsible for the assurance part when the intent will be operational

Intent examples

- Use case 1: Intent expressed from an external client (application service provider)
- - Intent expressed from a holographic communication based "GotoMeeting" service provider for providing multi-party telepresence.
- - Intent expressed to the network operator: For any user of this application, the arrival time of hologram objects of all the remote tele-presenters should be synchronised within 50ms to reach the destination viewer for each conversation session.

- Use case 2: Operator own intent - load balancing
- - For all traffic flows that need NFV service chaining, restrict the maximum load of any VNF node/container below 50% and the maximum load of any network link below 70%.

Different "layers": service 🔲 network and other domain/function specifics

"Audience"
and domain knowledge

Mapping / transformation operation
🔲 Need to be defined for each "layer" transition