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Network measurement intent
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Abstract

This memo introduces network measurement intent, namely the process of realizing user or network operator to allocate network states as needed. And it can be as a specified user case of intent based network.

Requirements Language

The key words "MUST", "MUST NOT", "REQUIRED", "SHALL", "SHALL NOT", "SHOULD", "SHOULD NOT", "RECOMMENDED", "MAY", and "OPTIONAL" in this document are to be interpreted as described in RFC 2119 [RFC2119].

Status of This Memo

This Internet-Draft is submitted in full conformance with the provisions of BCP 78 and BCP 79.

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1. Introduction

Since the development and implementation of intent based network (IBN) cannot be separated from accurate network state perception, accurate on demand network measurement technology is becoming more and more important. The combination of network measurement technology and IBN can achieve network performance acquisition based on user/network administrator intent-based, verify whether network measurement results meet the measurement intent, and further improve the accuracy of the configuration in IBN.

As the rise of IBN, different groups have different definitions of intent. For example, in [I-D.irtf-nmrg-ibn-concepts-definitions] defines intent as intent fulfillment and intent assurance. However, all different definitions of intent have some common characteristics, and can be classified according to [I-D.irtf-nmrg-ibn-intent-classification]. And in order to combine the network measurement intent with the existing drafts of IBN, we define the components of the network measurement intent processing process as follows:

- Intent Translation
- Intent Orchestration and pre-Verification
- Data Collection
- Intent Compliance Assessment

At the same time, according to [I-D.irtf-nmrg-ibn-concepts-definitions], network measurement intent can be classified as network intent, operational task intent or some other kinds of intent. And a detailed flow of network measurement intents will be given

2. Network Measurement Intent

Network measurement intent refers to the on-demand measurement of the network state based on the user/network operators' perceived intent of the network state. We will present the detailed process of it within each part and we will take the measurement of busy network performance as an example.

- Intent Translation. In this function, network measurement intents need to be translated into actions and requests taken against the network. In the measurement of busy network performances, due to dynamic changes such as daily network bandwidth occupancy rate, the period of network busy time is not fixed. As a result, Intent Translation can determine the threshold when the network state is busy on the same day based on the historical data learned by AI. And then determines the content to be measured.

- Intent Orchestration and pre-Verification. In this function, Intent Orchestration and pre-Verification determines the measurement scheme according to the required measurement content and equipment support degree, and verifies whether the measurement scheme is feasible. At the same time, it also needs to determine whether the network is busy according to the current network state. While the busy time threshold is exceeded, this function performs automatic network deployment, such as in CLI mode.

- Data Collection. This function is responsible for collecting data while determining the network is busy according to the current network state. And more importantly, this data collection process should start automatically.

- Intent Compliance Assessment. At the end, this function verifies whether the threshold meets the requirement and whether the network measurement intent is satisfied. If either of the two conditions is not satisfied, the network measurement intent will be modified and re-enter the Intent Orchestration and pre-Verification.

3. Summary

This memo introduces the network measurement intent, and give an example of network measurement of busy network performances. On the basis of existing intent drafts, this memo can be used as a use case for IBN.

4. Security Considerations

TBD.

5. IANA Considerations

This document has no requests to IANA.

6. References

6.1. Normative References

[RFC2119] Bradner, S., "Key words for use in RFCs to Indicate Requirement Levels", BCP 14, RFC 2119, DOI 10.17487/RFC2119, March 1997, <https://www.rfc-editor.org/info/rfc2119>.

6.2. Informative References

[I-D.irtf-nmrg-ibn-concepts-definitions] Clemm, A., Ciavaglia, L., Granville, L., and J. Tantsura, "Intent-Based Networking - Concepts and Definitions", draft-irtf-nmrg-ibn-concepts-definitions-02 (work in progress), September 2020.

[I-D.irtf-nmrg-ibn-intent-classification] Li, C., Havel, O., LIU, W., Olariu, A., Martinez-Julia, P., Nobre, J., and D. Lopez, "Intent Classification", draft-irtf-nmrg-ibn-intent-classification-00 (work in progress), July 2020.

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