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***ETSI***

650 Route des Lucioles

F-06921 Sophia Antipolis Cedex - FRANCE

Tel.: +33 4 92 94 42 00 Fax: +33 4 93 65 47 16

Siret N° 348 623 562 00017 - APE 7112B

Association à but non lucratif enregistrée à la

Sous-préfecture de Grasse (06) N° w061004871

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# Foreword

This Group Specification (GS) has been produced by ETSI Industry Specification Group (ISG) Experiential Networked Intelligence (ENI).

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# Executive summary

# Introduction

# 1 Scope

This GS will investigate how the network large language model interacts with multiple add-on components. These components in this GS include a data lake and a knowledge base. The interaction between network LLM and data lake is mainly realised through two forms, API interaction and sending requests directly from network LLM to data lake. The interaction with a knowledge base is mainly focused on providing corpus data for network LLM training. In addition, network LLM also needs to invoke knowledge base through tasks.

# 2 References

## 2.1 Normative references

References are either specific (identified by date of publication and/or edition number or version number) or non‑specific. For specific references, only the cited version applies. For non-specific references, the latest version of the referenced document (including any amendments) applies.

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[i.1] <Standard Organization acronym> <document number><version number/date of publication>: "<Title>".

[i.2] etc.

# 3 Definition of terms, symbols and abbreviations

## 3.1 Terms

For the purposes of the present document, the [following] terms [given in ... and the following] apply:

Editor’s notes: The term “knowledge base” is to be double check. Whether “knowledge graph” should be used is TBD.

Knowledge base: a collection of various types of knowledge, including structured data and unstructured content.

## 3.2 Symbols

For the purposes of the present document, the [following] symbols [given in ... and the following] apply:

## 3.3 Abbreviations

For the purposes of the present document, the [following] abbreviations [given in ... and the following] apply:

# 4 Background and Overview

## 4.1 Background

In the process of intelligent network construction, the use of large language model to improve the level of network intelligence has become a new trend. When solving practical business problems, the network LLM, oriented to the communication industry, can activate extensive communication business knowledge by establishing interactions with add-on components. Furthermore, with the support of real business data, it enables closed-loop intelligent optimization of the network, thereby enhancing the level of network self-intelligence.

In business application practice of network LLM, an interaction mode more suitable for the communication industry has been formed. In order to provide better guidance for the application of network LLM in intelligent network, it is necessary to establish a unified standard to clarify the interactions between network LLM and the add-on components.

## 4.2 Overview

In the practical process of network LLM, some drawbacks hinder its wide application. Without the support of professional knowledge, network LLM cannot fully understand industry-specific terminology, processes, and specifications. This results in a lack of industry characteristics in its output, led to a poor performance in dealing with complex problems, and an inability to solve real practice problems. Moreover, the lack of real business data support makes the network LLM unable to accurately understand the current situation of business problem, so it cannot provide decisions credible enough, which limits the scope of application of network LLM in solving business problems. Therefore, in the implementation of network LLM application, it needs to interact with the data lake and the knowledge base to obtain authentic business data and information, so as to improve its professionalism and accuracy.

The interaction of network LLM and add-on components plays a crucial role in the application practice of network LLM. Data lake and knowledge base contain a large amount of authoritative business data and information, which is not possessed by the network LLM. By capturing the data and the information, network LLM can learn more realistic business patterns, gain a deeper understanding of the business, and produce better results for specific business scenarios. Knowledge base makes network LLM possible to integrate expertise and improve its decision-making power and accuracy in specific business areas.

In conclusion, the interaction of network LLM and add-on components can provide higher accuracy, stronger business adaptability, more professional and personalized services in practice, and bring better user experience and stronger product competitiveness.

# 5 Add-on components

In the business application based on network LLM, add-on components refer to modules that enhance or extend the functionality of network LLM. They can be customized and configured for specific requirements in order to support network LLM in delivering more advanced capabilities and services and handling more complex tasks. In this GS, add-on components mainly include a data lake and a knowledge base.


## 5.1 data lake

Void

## 5.2 knowledge base

Void

# 6 Interaction of network LLM and data lake

Void

# 7 Interaction of network LLM and knowledge base

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# 8 Work flow

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