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Experiential Networked Intelligence (ENI); Definition, Requirements and Procedure of Intent Policy Multi-Stage Translating

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Foreword

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

Modal verbs terminology

In the present document "**shall**", "**shall not**", "**should**", "**should not**", "**may**", "**need not**", "**will**", "**will not**", "**can**" and "**cannot**" are to be interpreted as described in clause 3.2 of the ETSI Drafting Rules (Verbal forms for the expression of provisions).

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Executive summary

The present document specifies a high-level functional abstraction of the process of intent policy Multi-Stage translating in ENI system in terms of Functional Modules, Internal Reference Points and working pipelines.

Introduction

The present document defines a high-level functional abstraction of Intent Policy Multi-Stage Processing. The organization of the present document is as follows. Clause 1 defines the scope of the present document. Clauses 2 and 3 provide normative and informative references and definition of terms, respectively. Clause 4 provides an informative overview of Intent Policy Multi-Stage Translating, including its motivation, benefits, important concepts and an overview of its Functional Modules. Clause 5 defines important design principles of the processing. Clause 6 provides some use cases of Intent Policy Multi-Stage Processing. Clause 7 gives away some potential future works on the present document.

1 Scope

The present document augments existing intent policy translating procedure in ENI. The purpose of the present document is to describe intent policy multi-stage translating in ENI system, and to enhance intent policy multi-stage translating.

The present document also defines the output(s), input(s), internal process and interaction of every stage during intent policy multi-stage translating.

Intent policy multi-stage translating is a detailed procedure that can translate an intent policy according to the Policy Continuum. There is an external knowledge base to be added to provide a set of multi-stage general processing scheme for intent policy.

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.

Referenced documents which are not found to be publicly available in the expected location might be found at https://docbox.etsi.org/Reference.

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The following referenced documents are necessary for the application of the present document.

[1] ETSI GS ENI 005 (V3.1.1): "Experiential Networked Intelligence (ENI); System Architecture".

[2] ETSI GS ENI 030 (V4.1.1): "Experiential Networked Intelligence (ENI); Transformer Architecture for Policy Translation".

2.2 Informative 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.

NOTE: While any hyperlinks included in this clause were valid at the time of publication, ETSI cannot guarantee their long term validity.

The following referenced documents are not necessary for the application of the present document but they assist the user with regard to a particular subject area.

[i.1] ETSI GS ENI 019 (V3.1.1): "Experiential Networked Intelligence (ENI); Representing, Inferring, and Proving Knowledge in ENI".

3 Definition of terms, symbols and abbreviations

3.1 Terms

For the purposes of the present document, the following terms apply:

AI model (in the present document): model that is capable of processing the understanding and generation of natural language

business intent: abstract network intent input by the user

intent-level entity: specific noun element in an intent-level template that represents a network attribute

intent-level template: network intent with fixed format

knowledge base: unified repository encompassing diverse structural resources including knowledge graphs for linking data contexts and text documents

knowledge graph: data organization model leveraging graph theory and logical frameworks to depict the interconnectedness and logical associations within information, realized through a graphical structure for coherent knowledge storage and handling

named entity: word or phrase that refers to an item or process of interest

named entity recognition: information extraction task focused on identifying specific, named elements within text data

network entity: group of network information combination, such as [time and bandwidth], [start time, end time and packet loss], etc.

network policy: Domain Specific Language (DSL) generated from a user-level template

on-demand service: service that is provisioned and used as needed

part-of-speech tagging: natural language processing technique used to determine the grammatical category of each word in a sentence, such as nouns, verbs, adjectives, etc.

service-level template: template incorporating Quality of Service, Access Control List, Service-Level Agreements, and Network Function Virtualisation, etc.

user-level template: service-level template that incorporates user preferences, device information, etc.

3.2 Symbols

Void.

3.3 Abbreviations

For the purposes of the present document, the following abbreviations apply:

ACL	Access Control List
AI	Artificial Intelligence
CRF	Conditional Random Fields
DSL	Domain Specific Language
HMM	Hidden Markov Model
NER	Named Entity Recognition
NFV	Network Functions Virtualisation
NLP	Natural Language Processing
QoE	Quality of Experience
QoS	Quality of Service
RNN	Recurrent Neural Network
SLA	Service Level Agreement