

ENI Release 2

ENI focuses on improving the operator experience, adding closed-loop AI mechanisms based on context-aware, metadata-driven policies to more quickly recognize and incorporate new and changed knowledge, and hence, make actionable decisions.

ENI has specified a set of use cases and the derived requirements for a generic technology independent architecture of a network supervisory assistant system based on the ‘observe-orient-decide-act’ control loop model. This model gives recommendations to decision-making systems, such as network control and management systems, to adjust services and resources offered based on changes in user needs, environmental conditions and business goals.

Release 2 has specified enhanced use cases, requirements, system architecture, and POC specifications.

It has also defined new work items:

1. for characterizing the types of data and their operations for use in an intelligent network
2. to further specify evaluation criteria of network autonomicity categories for use by an ENI System,
3. to define reactive in-situ flow telemetry for better understanding of the network state,
4. to define how an ENI System works with operational systems that are either managing or hosting resources for the Assisted System,
5. to provide information on generic principles for constructing modular systems to be applied to the entire ENI reference system architecture, e.g. common concepts such as Functional Block design, state, cognition, and inferencing, along with communication between different domains;
6. to describe prominent control loop architectures that can be used in modular system design, with special emphasis on control loops that are adaptive and cognitive, and
7. to provide information on different types of AI mechanisms that can be used for cognitive networking and decision making in modern system design including Bias and ethics.

Experiential Networked Intelligence (ENI) Release 2 specifications and reports published in the release 2 timeframe include:

- [ENI 001](#) (WI RGS/ENI-0014) *Use Cases published as v3.1.1*
- [ENI 002](#) (WI RGS/ENI-0015) *Requirements published as v3.1.1*
- [ENI 004](#) (WI RGR/ENI-0018) *Terminology published as v2.2.1*
- [ENI 005](#) (WI RGS/ENI-0016) *System Architecture published as v2.1.1*
- [ENI 008](#) (WI DGR/ENI-0013) *Intent Aware Network Autonomicity published as v1.1.1*
- [ENI 009](#) (WI DGR/ENI-0017) *Data Mechanisms published as v1.1.1*
- [ENI 010](#) (WI DGR/ENI-0020) *Evaluation of categories for AI application to Networks published as v1.1.1*
- [ENI 016](#) (WI DGR/ENI-0026) *Functional Concepts for Modular System Operation published as v1.1.1*

- [ENI 017](#) (WI DGR/ENI-0027) *Overview of Prominent Control Loop Architectures published as v1.1.1*
- [ENI 018](#) (WI DGR/ENI-0028) *Artificial Intelligence Mechanisms for Modular Systems published as v1.1.1*

ENI PoC activities validate the concept defined in the Work-Items and enable to explore new solutions and scenario. Please find below the current status:

- [PoC 01: Intelligent Network Slice Lifecycle Management](#)
China Telecom
- [PoC 02: Elastic Network Slice Management](#)
Universidad Carlos III de Madrid
- [PoC 03: Securing against Intruders and other threats through a NFV-enabled Environment](#)
Telefonica
- [PoC 04: Predictive Fault management of E2E Multi-domain Network Slices](#)
Portugal Telecom/Altice Labs
- [PoC 05: Intelligent Traffic Profiling](#)
China Mobile
- [PoC 06: Intelligent caching based on prediction of content popularity](#)
China Unicom
- [PoC 07: Intelligent time synchronization of network](#)
China Unicom
- [PoC 08: Intent-based User Experience Optimization](#)
China Telecom/Huawei Technologies
- [PoC 09: Autonomous Network Slice Management for 5G Vertical Services](#)
Nextworks
- [PoC 10: Intelligent Telecom Network Energy Optimization](#)
China Mobile
- [PoC 11: Intelligent Energy Management of DC](#)
China Telecom
- [PoC 12: Intelligent Transport Network Optimization](#)
China Mobile
- [PoC 13: Intelligent Coverage Optimization of 5G Massive MIMO BS](#)
China Telecom
- [PoC 14: Intent-based Cloud Management](#)
NTT

The PoC descriptions and presentations are available on the public ETSI ENI Wiki Pages ([ENI Wiki](#)). The Wiki pages are revised with the latest reports and demos.