

# REPORT ON ACTIVITIES POC 22 NTN, 5G SRV6 INTEGRATION FOR TSN BY ARTIFICIAL INTELLIGENCE

ETSI ENI #30 2024 June 3rd



**Dott. Pietro Cassarà**

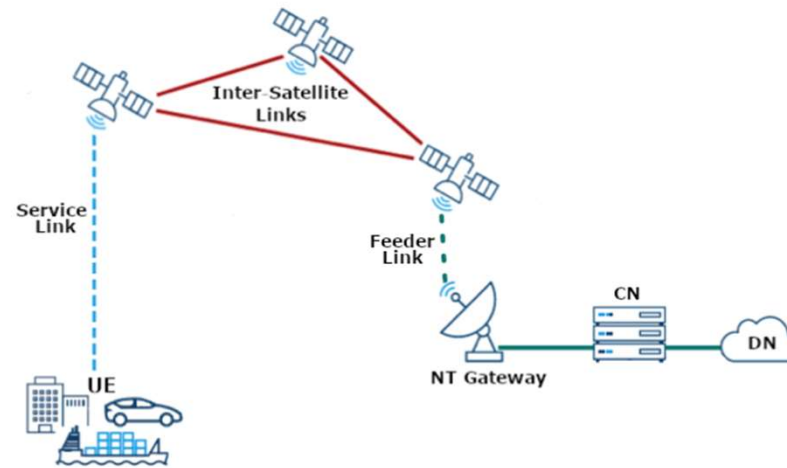
[pietro.cassara@isti.cnr.it](mailto:pietro.cassara@isti.cnr.it)

	Organization name	ISG ENI participant (yes/no)	Contact (Email)	PoC Point of Contact (see note 1)	Role (see note 2)	PoC Components
1	CNR ISTI	Yes	Pietro Cassarà pietro.cassarà@isti.cnr.it	x	Academic	- User Stories / Use Cases definition - PoC development - PoC documentation - PoC demos
2	CNIT	Yes	Fabrizio Granelli fabrizio.granelli@unitn.it		Academic	-Help with concept proof
3	Huawei	Yes	Aldo Artigiani aldo.artigiani@huawei.com		Vendor	-Help with architecture design, protocol design, intelligent solution, and platform verification
4	China Telecom	Yes	Yu Zeng zengyu@chinatelecom.cn		Operator	-Validate solution and support test execution, provide use cases
5	Futurewei Technologies	Yes	strazpdj@gmail.com		Research	- Contribute to ENI evolution to support new scenarios to be validated in PoC execution

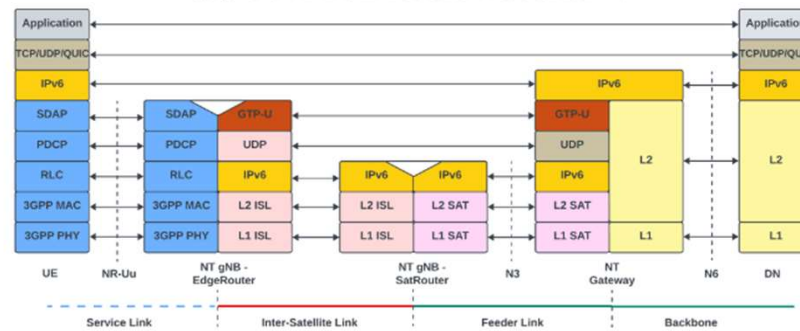
NOTE 1: Identify the PoC Point of Contact with an X.

NOTE 2: The Role will be network operator/service provider, infrastructure provider, application provider or other as given in the Definitions of ETSI Classes of membership.

# REFERENCE SCENARIOS



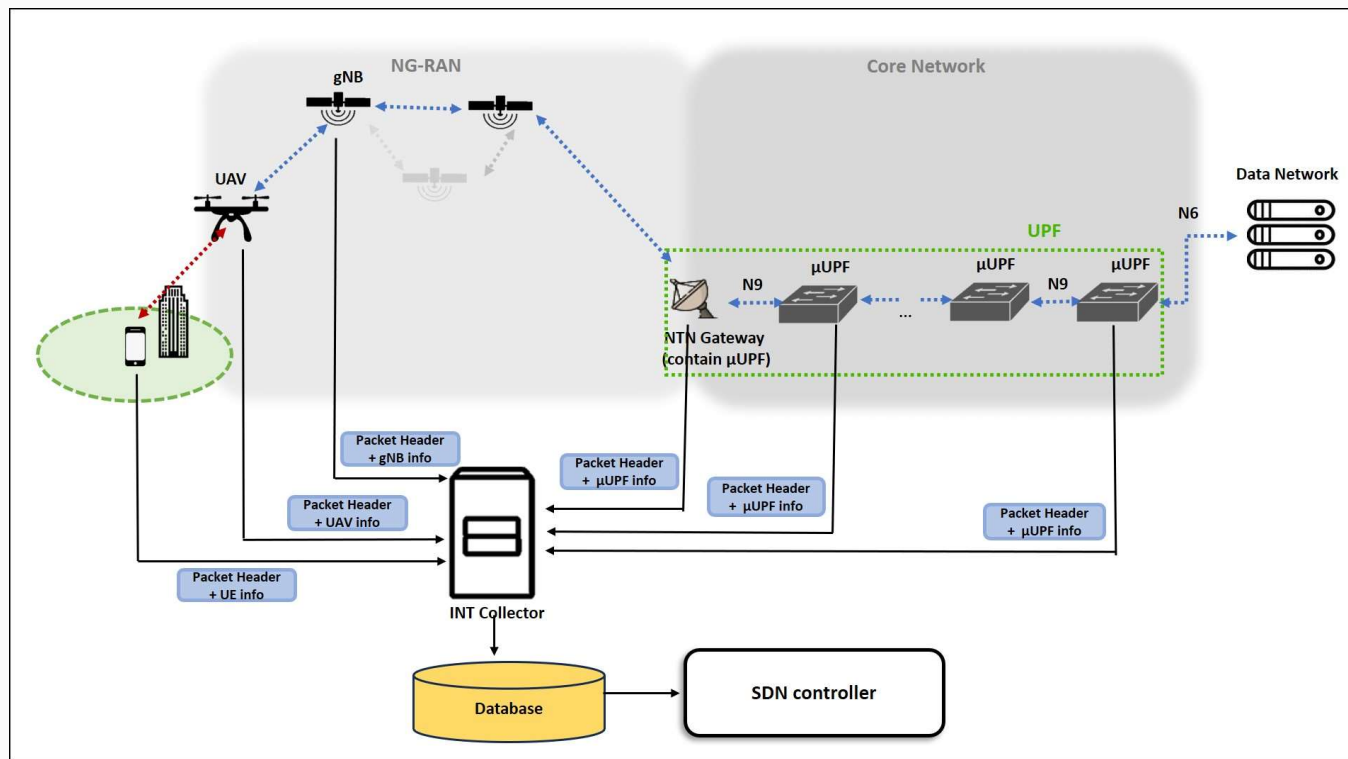
(a) Communication Scenario



(b) UP Protocol Stack

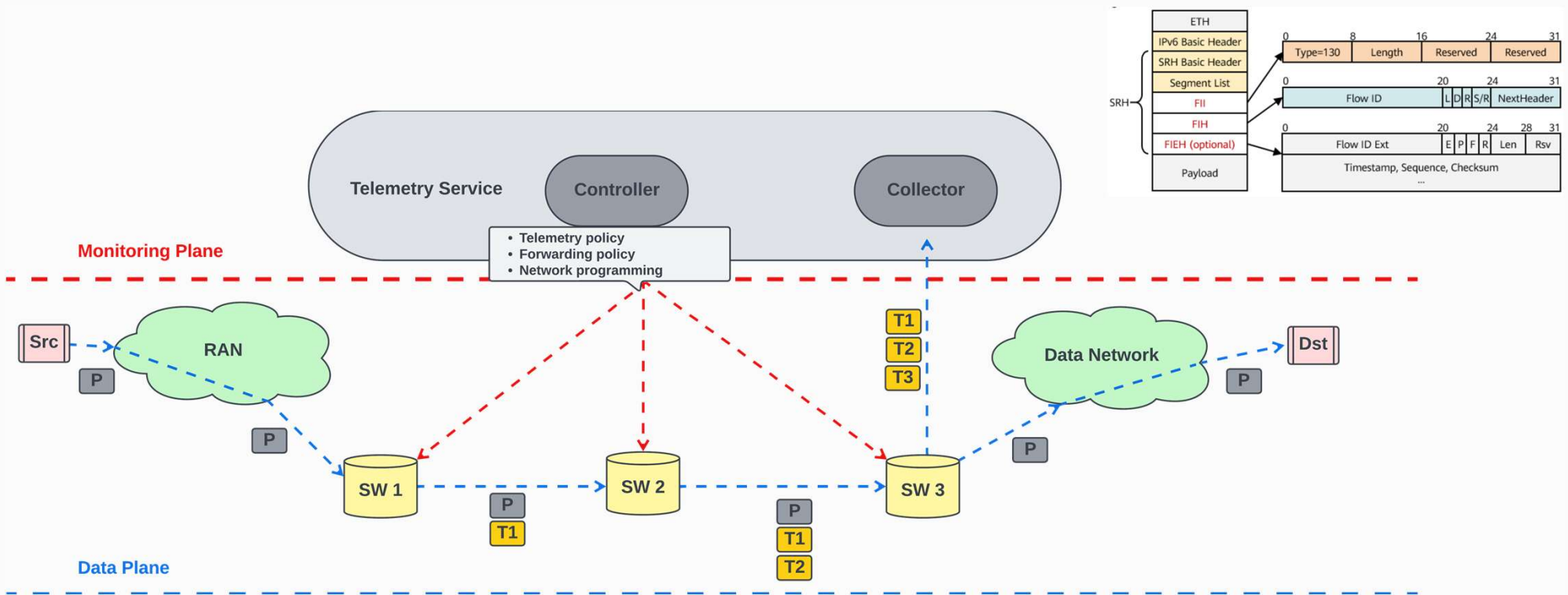
# SLA ENFORCING

## RL-based approaches for SLA Controlling



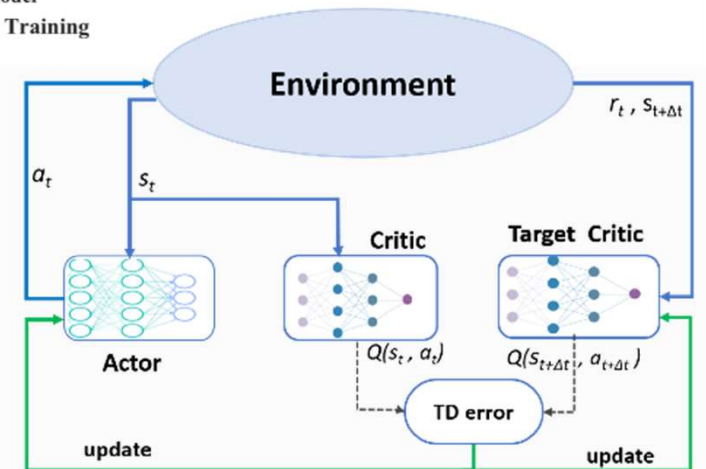
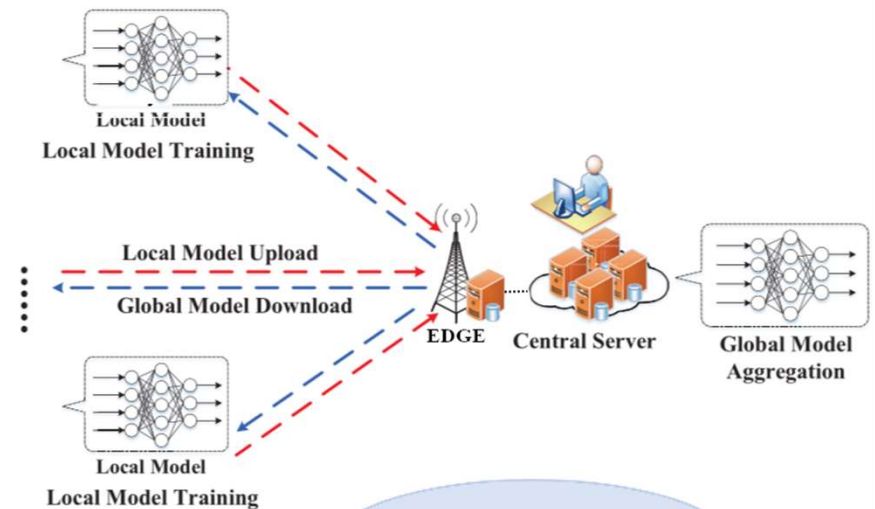
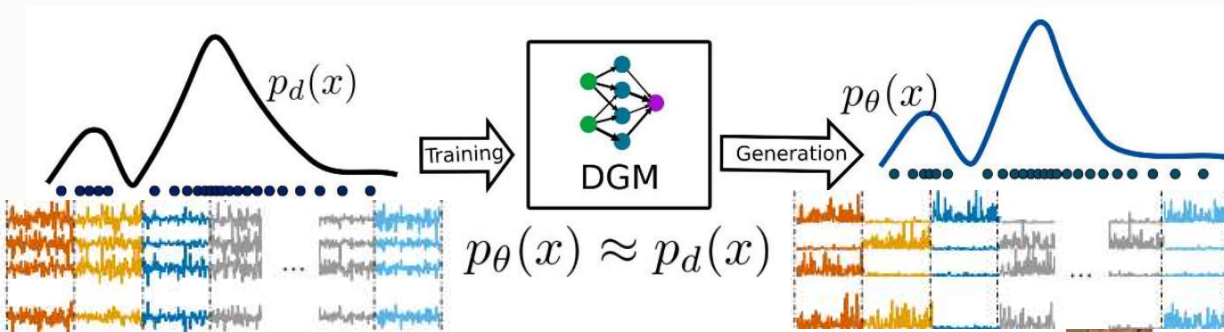
# NETWORK PERFORMANCE MEASURING

## How to gathering information: in-band telemetry



# LEARNING APPROACHES

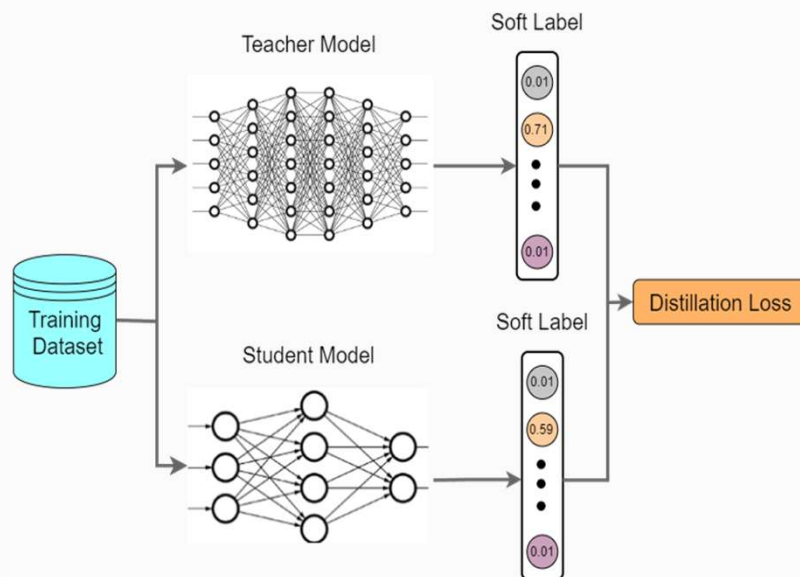
- **Deep Reinforcement Learning**  
Learning system behavior in a model-free flavor
- **Federated Learning**  
Learning distributed information preserving data privacy and communication load
- **Generative Models**  
From partial-observable system behavior to fully-observable



# TRANSFER LEARNING

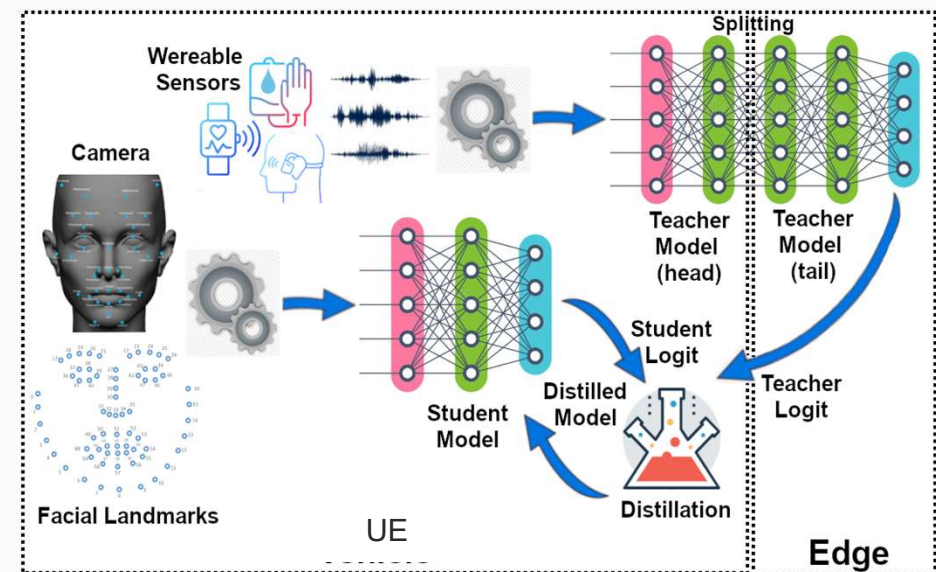
## ➤ Distillation

Transfer knowledge from a complex model to a simple one



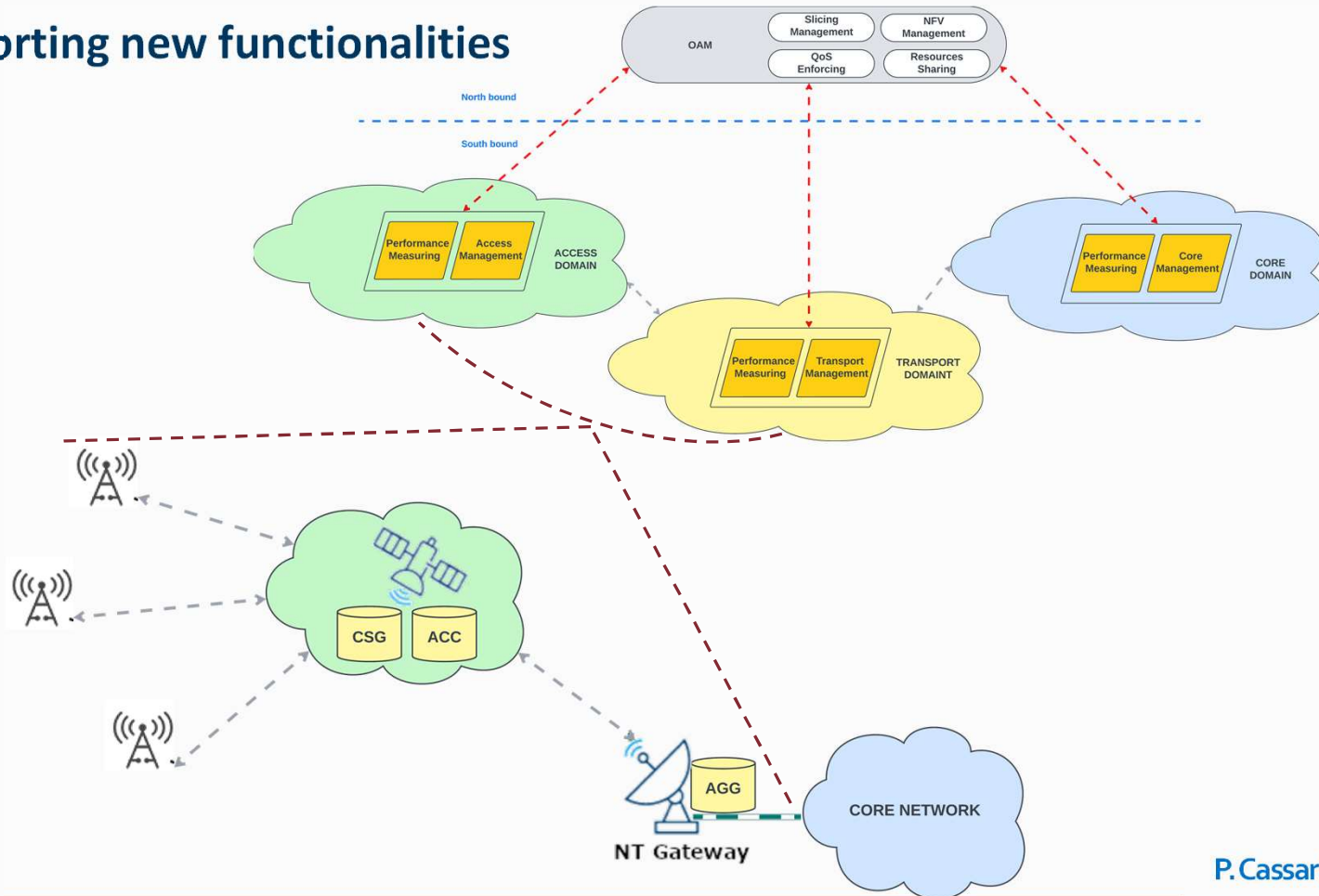
## ➤ Cross-Modal

Transfer knowledge from a modality to another



# OAM ARCHITECTURE

## IPRAN for supporting new functionalities





**Thanks for the attention**

