

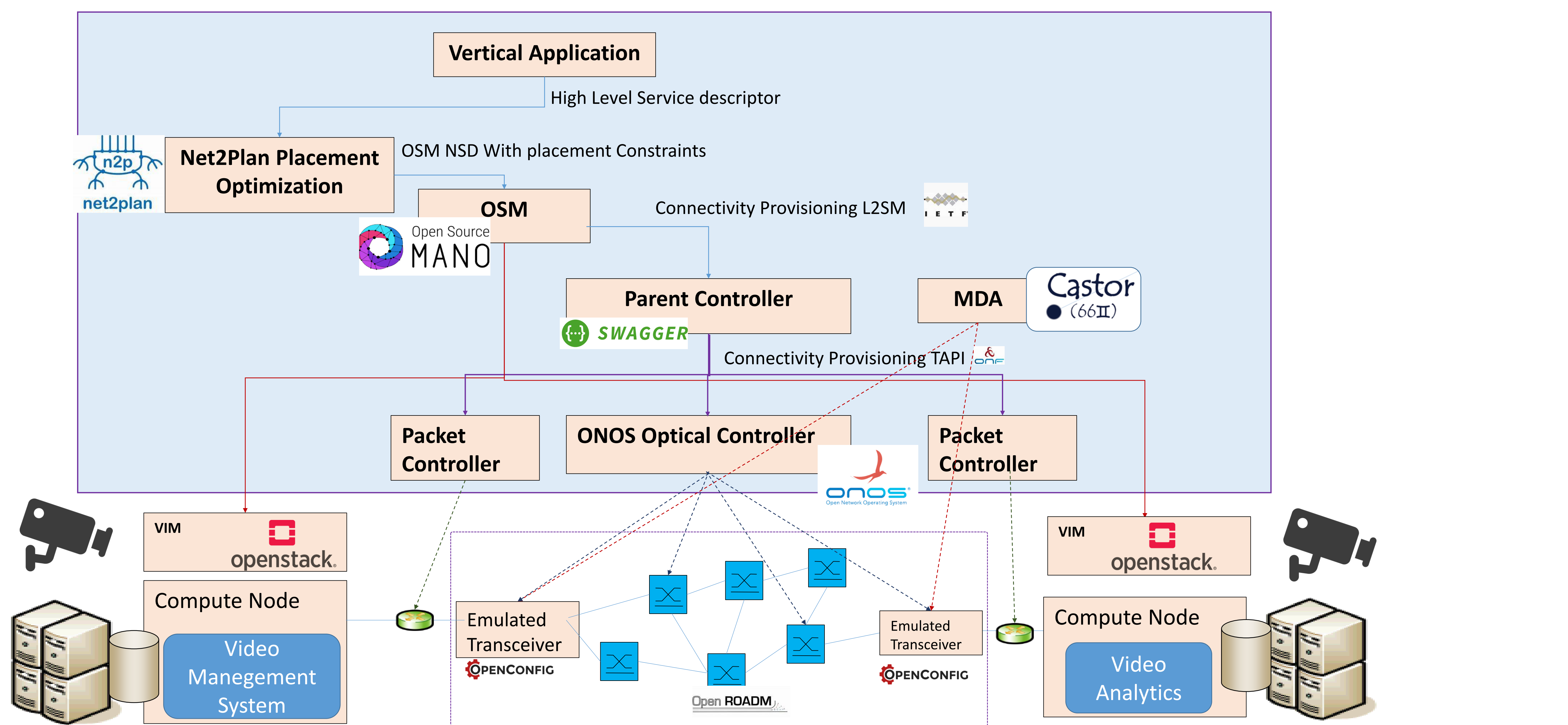
Leveraging multi-layer network slicing for improving public safety

Multi-partner demonstration: Telefónica Investigación y Desarrollo, Centre Tecnològic de Telecomunicacions de Catalunya, Universitat Politècnica de Catalunya, University of Bristol, Universidad Politécnica de Cartagena, Telecom Italia, Politecnico di Milano, ADVA Optical Networking, SeeTec, Fraunhofer Heinrich Hertz Institute, CNIT

MOTIVATION

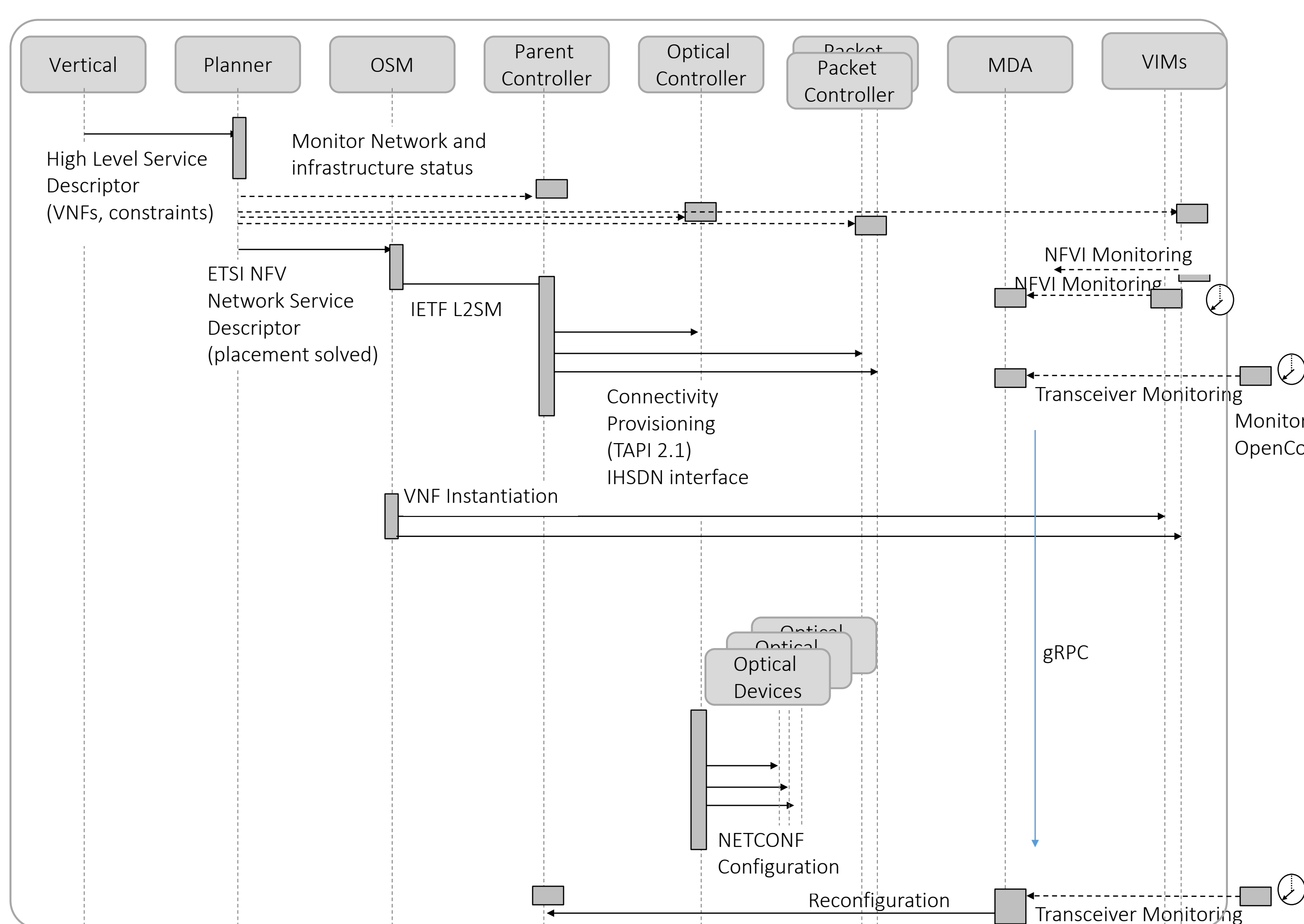
Time-critical, high-bandwidth 5G services - as demanded by the demonstrated **public safety use case**, require a flexible allocation of storage and computing resources in different network locations, interconnected by a programmable multi-layer optical network. Service orchestration and resource control is necessary across multiple technology domains.

Building on and extending open source orchestrators and controllers (such as **OSM** and **ONOS**), Metro-Haul is developing a **Control, Orchestration and Management (COM)** system for this purpose. Advanced features include the ability to i) perform **intelligent function placement** taking into account resource requirements and availability in computing and network domains (including optical resources such as wavelength or optical spectrum) and ii) leveraging the benefits of **Machine Learning assisted network operation**.

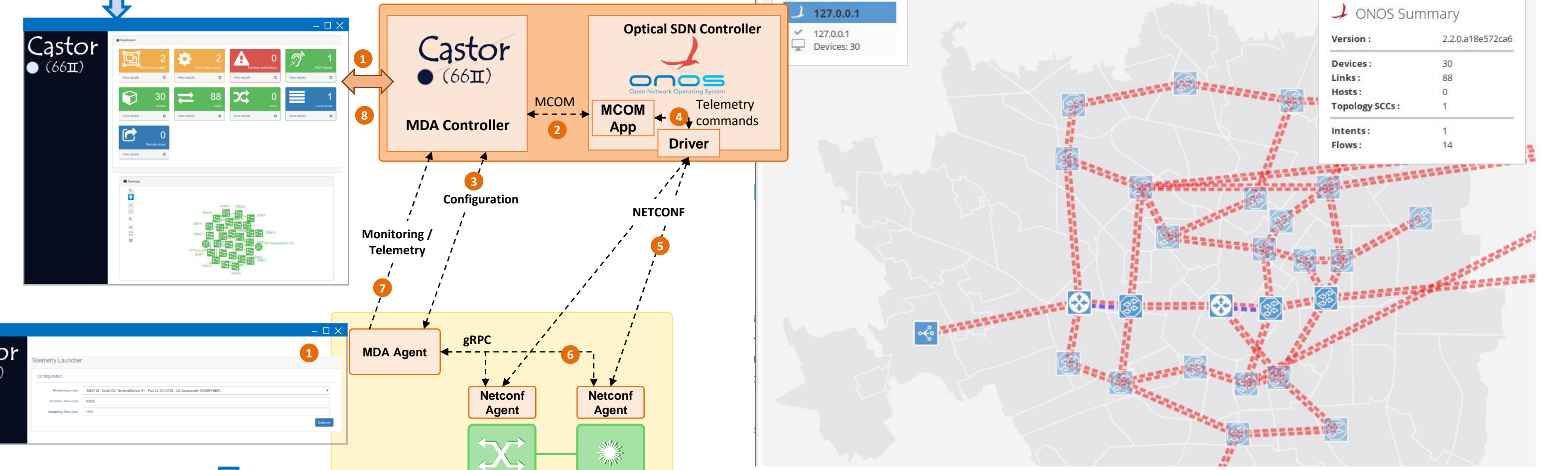


View of disaggregated Optical network in ONOS

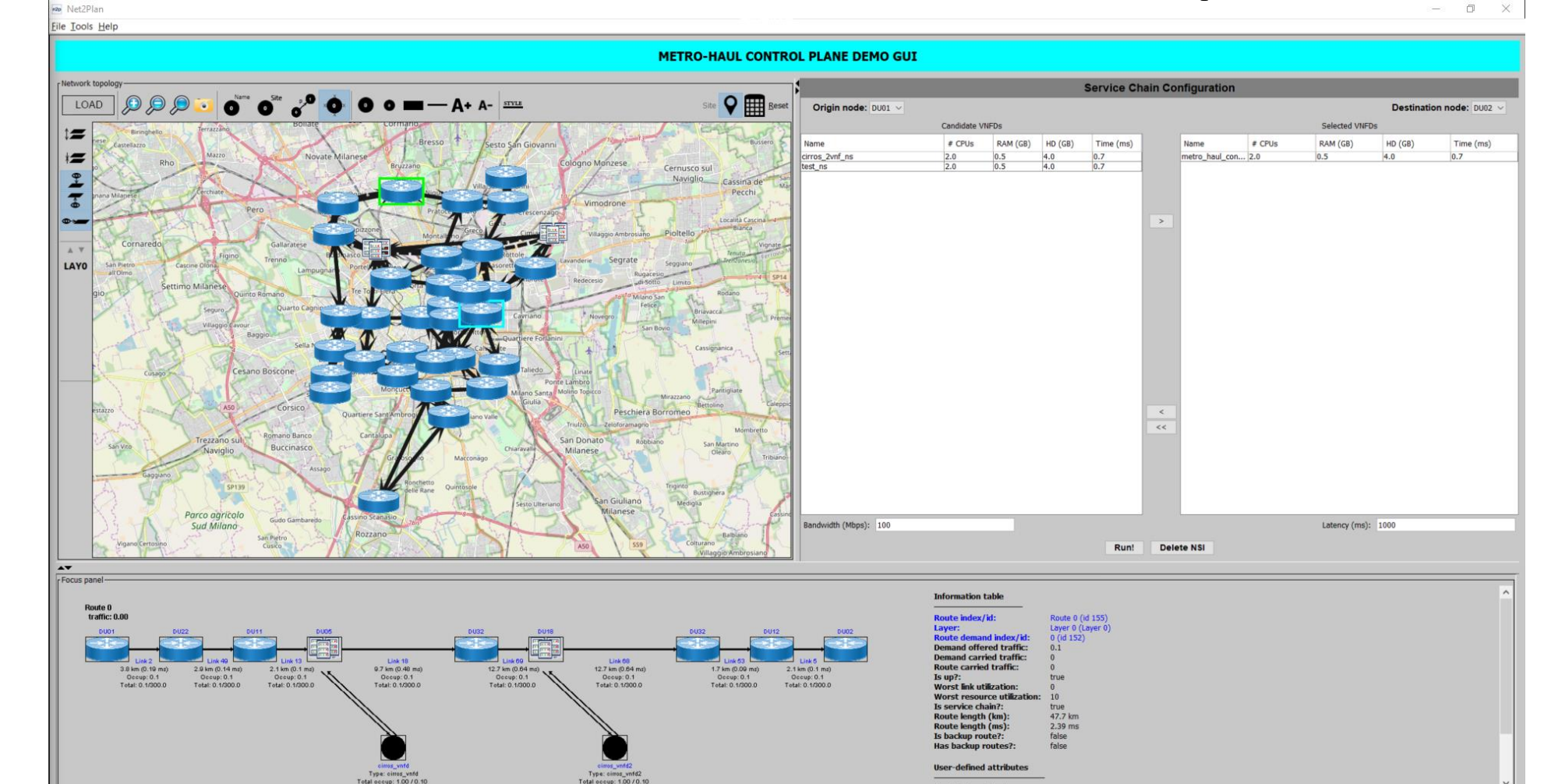
Demonstration Workflow



Monitoring and data analytics



VNF Placement and Metro Resource Optimization



This **control plane architecture** enables the flexible deployment of a **network slice instance**, implemented in terms of an ETSI NFV Network Service, and supports a **high-bandwidth low latency public safety application** over a **next-generation metro network**.

Acknowledgement

This work has received funding from the European Union's Horizon 2020 research and innovation program under grant agreement No. 761727 (METRO-HAUL).

Twitter: <https://twitter.com/MetroHaul>

ResearchGate <https://www.researchgate.net/project/Metro-Haul>

