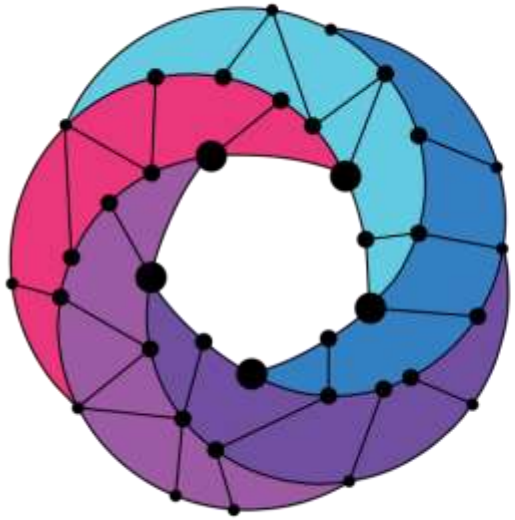


Open Source MANO

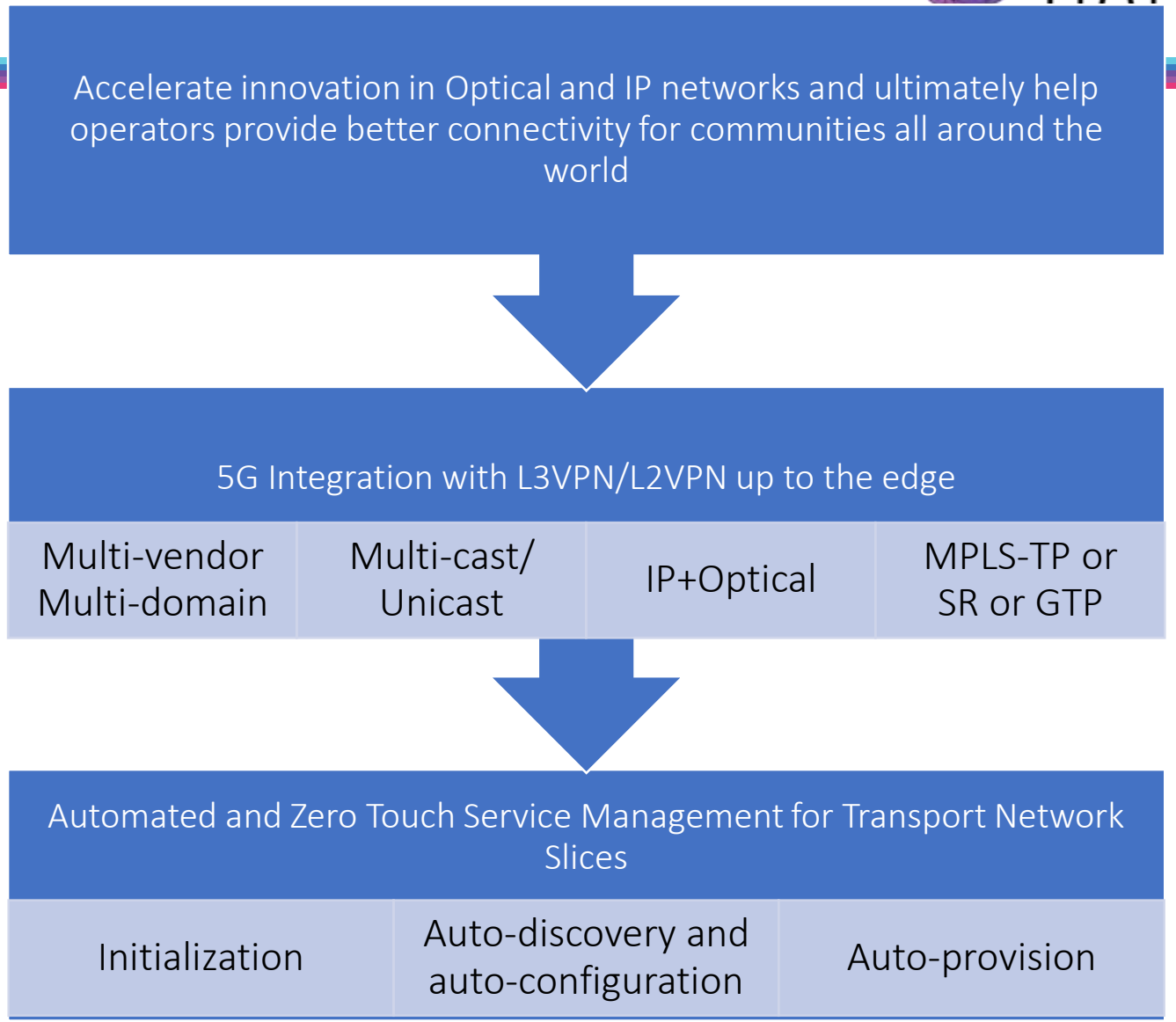
TERAFLOW Relationship with OSM Ecosystem

Ricard Vilalta and Ricardo Martínez

TeraFlow

ETSI

Objective 1: Adoption of SDN by Telecom Operators



Objective 2: Handle a Tera of flows

- Cloud-native Network Operative System
- IoT - a tera of flows – New cloud-native architectures, P4 introduction
- Inventory, alarms, provisioning – Novel protocols (gNMI)

Objective 3: Easily integrate with distributed computing through Transport Network Slices

Integration with:

- Telco Cloud
- MEC

Enabling:

- Cloud-native solutions
- 5G GTP flow definitions
- 5GCore

Inter-domain smart contracts

- B2B
- B2C

Objective 4: Secure Operator Network

AI/ML based on

- ETSI ZSM
- ETSI ENI

Cybersecurity - MouseWorld

- Attack detection
- Reactive protection
- Synthetic attack generation

DLT

- Secure network element configuration
- Smart-contract-based verification and update
- Support for forensic evidence (in TeraFlow for network element configuration)

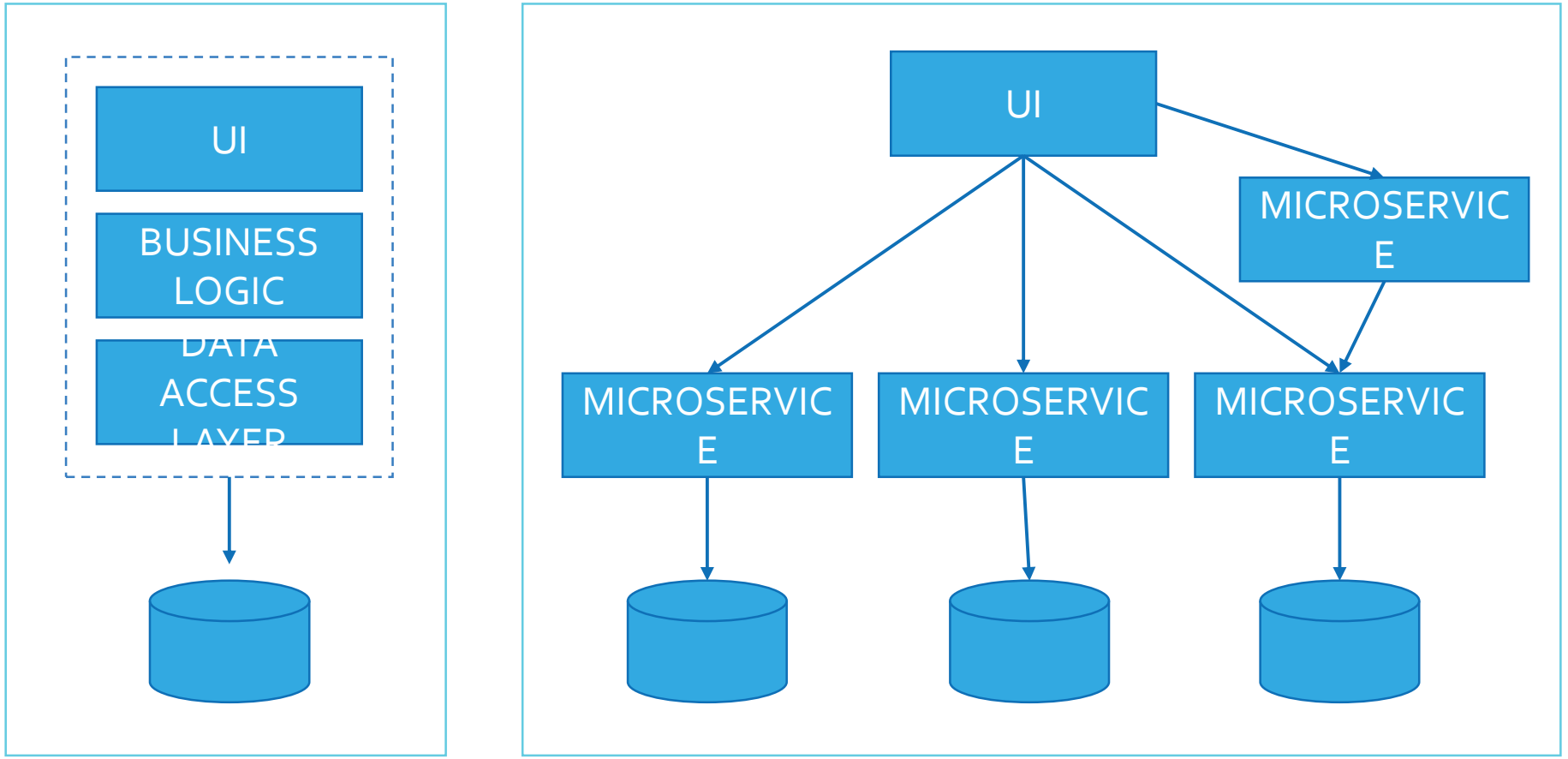
TERAFLOW OS

Lack of Commercial Products for SDN

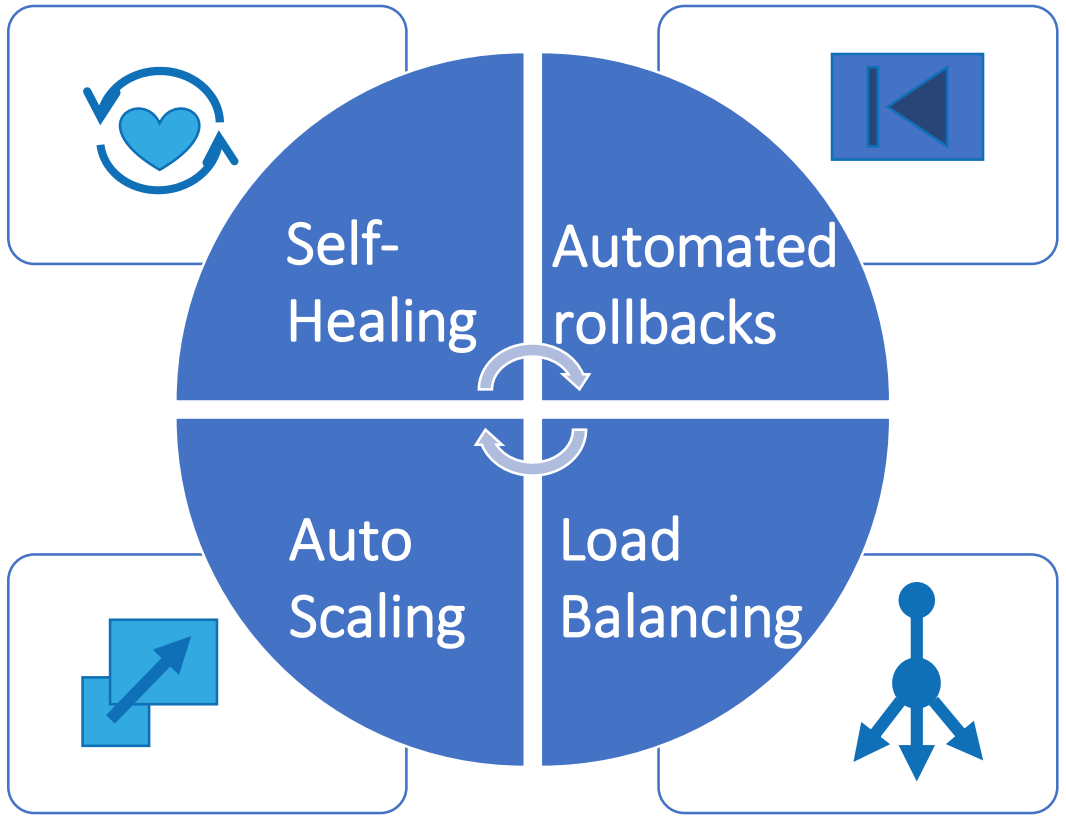
Open-Source Software with Apache License

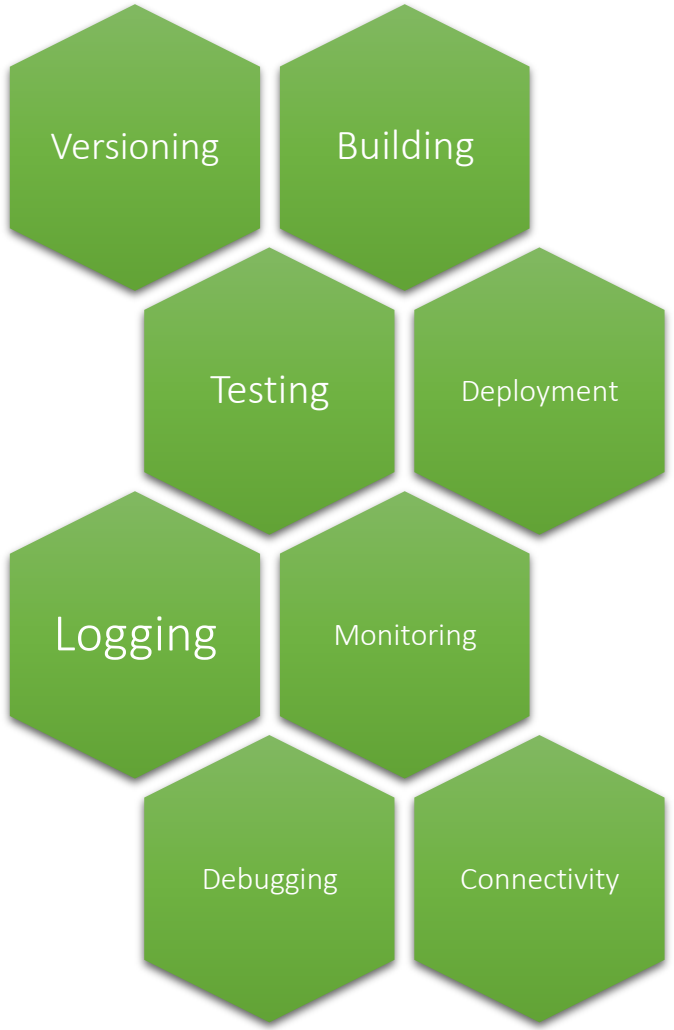
Contributions to other OSS

Monolithic vs. Micro-services



Cloud-native benefits and challenges





- Mentality Change
- Robust monitoring
- Testing complexity
- Design with failure in mind

Applicability Scenario

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TeraFlow

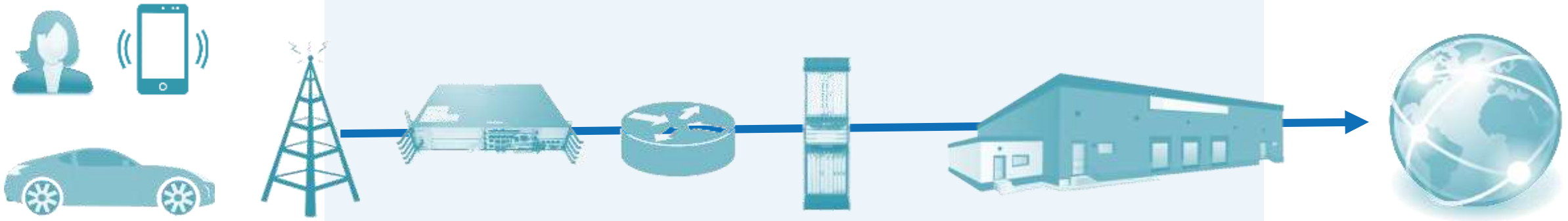
ACCESS | **BACKHAUL** | **CORE**

RAN | EDGE COMPUTING | IP & OPTICAL TRANSPORT | MICROWAVE | AI & MACHINE LEARNING

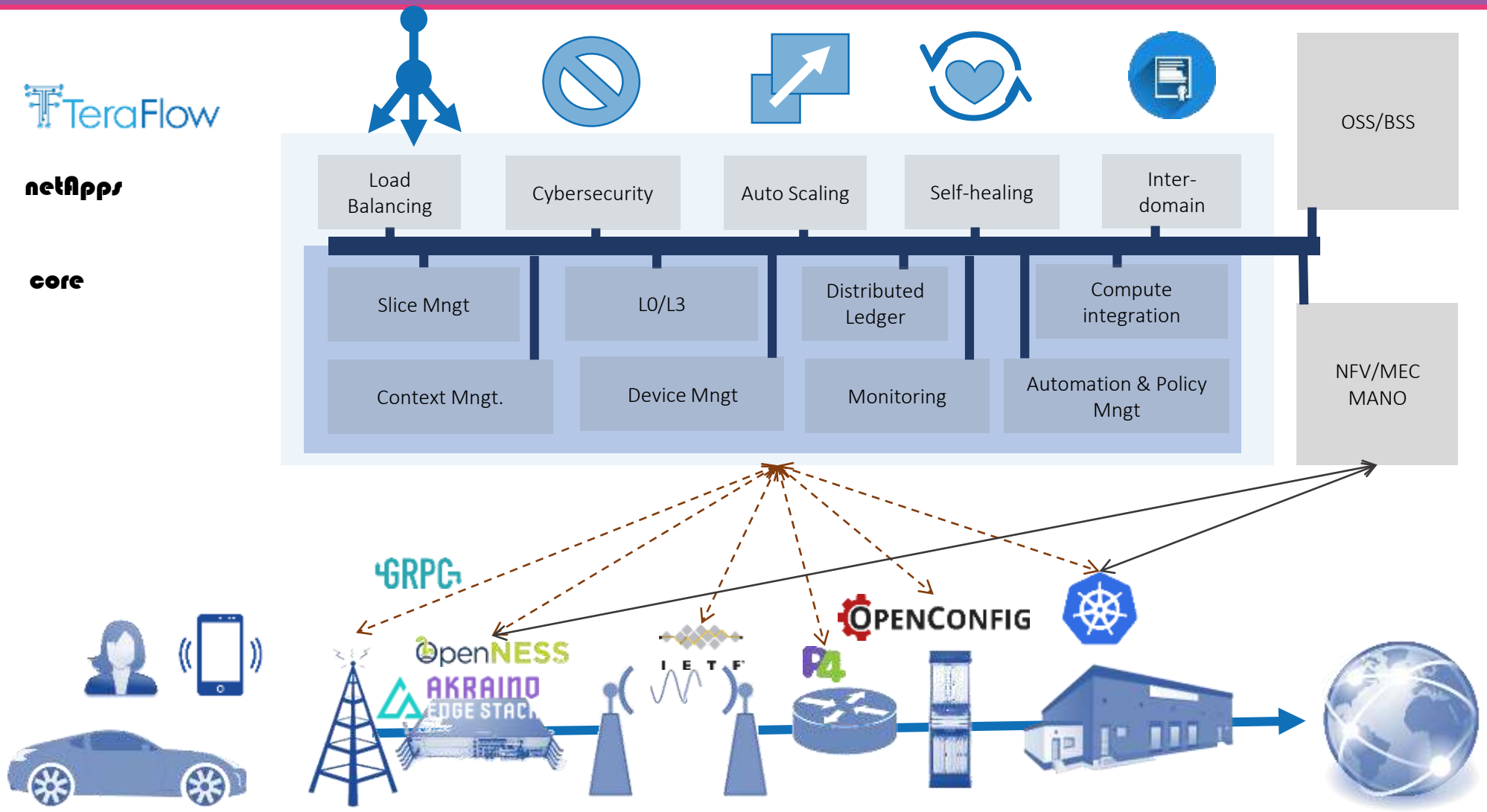
AUTONOMICITY AND NETWORK/COMPUTE INTEGRATION

AI-BASED CYBERSECURITY

TRUSTED MULTI-TENANCY



Teraflow Architecture



TeraFlow Template

Project relationship with current activities

Software Defined Neworking

iFusion

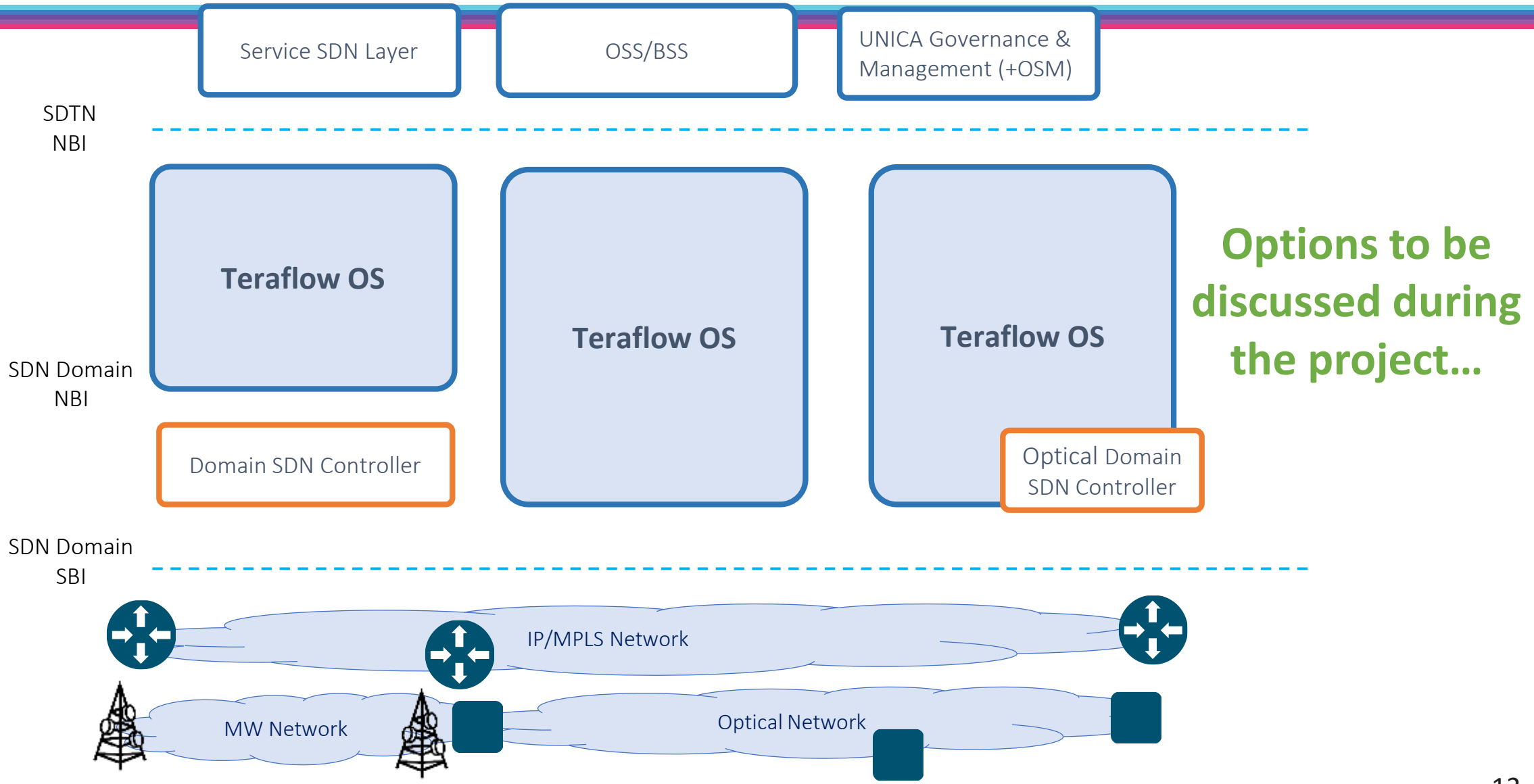
MUST

µONOS

Telco Cloud Infrastructure

UNICA Next

Role Teraflow



Options to be discussed during the project…

NFV orchestrator integration component

- TeraFlow component that offers NBI to NFV orchestrator to provide connectivity services
- Proposed NBI:
  - IETF Transport Network Slices: draft-nsdt-teas-ietf-network-slice-definition-02
  - IETF L2VPN
- Integration with:
  - OSM:
    - Using current plugin: L2VPN https://osm.etsi.org/gitweb/?p=osm/RO.git;a=blob;f=RO-SDN-ietfl2vpn/osm_rosdn_ietfl2vpn/wimconn_ietfl2vpn.py;h=9b67fc17f828d0d951f74520fae7189b10496c21;hb=HEAD
    - Providing new plugin based on Transport Network Slices and ONF Transport API
  - Other?
- **Description of work:**
  - Analysis and support (implementation and deployment) of the NBI operations supported by the selected MANO solution controlling edge/core for the interworking with the TeraFlow OS dedicated component
  - Definition of the interactions/workflows for instantiating/updating/releasing transport resources entailing the selection of the transport protocol/s to enable traffic isolation capabilities of the data incoming/outgoing DCs (e.g., VLAN and MPLS label)
  - Devising and validation of transport resource algorithms to select/update resources satisfiying the slice/network service reqs.

Thank you!

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TeraFlow

www.teraflow_h2020.eu

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CTTC Centre Tecnològic de Telecomunicacions de Catalunya

Atos

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telenor

NEC

UBITECH ubiquitous solutions

DIPL. PHYS. PEER STRITZINGER GMBH

infinera

SME siae microelettronica

NTNU Norwegian University of Science and Technology

VOLTA Networks

OLD DOG CONSULTING

5G PPP