

A microscopic image of plant cells, showing a network of green cell walls forming a grid-like structure. A blue rectangular box is overlaid on the right side of the image, containing text and the Telefónica logo.

Carrier SDN

Control plane and SDN
convergence in E2E networks

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Software Defined Networking

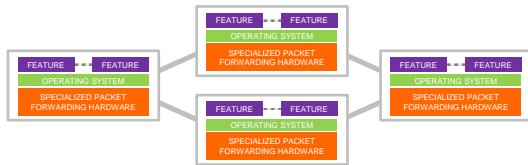


Network equipment as Black boxes

SDN

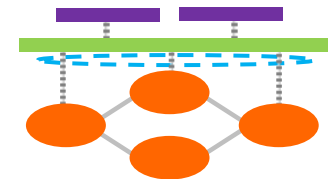


Open interfaces (OpenFlow) for instructing the boxes what to do

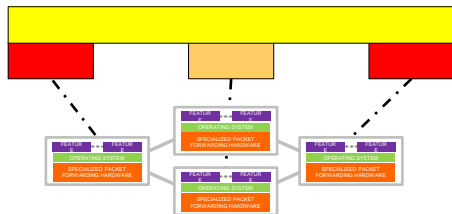


Boxes with autonomous behaviour

SDN

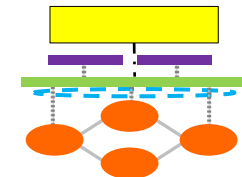


Decisions are taken out of the box



Adapting OSS to manage black boxes

SDN



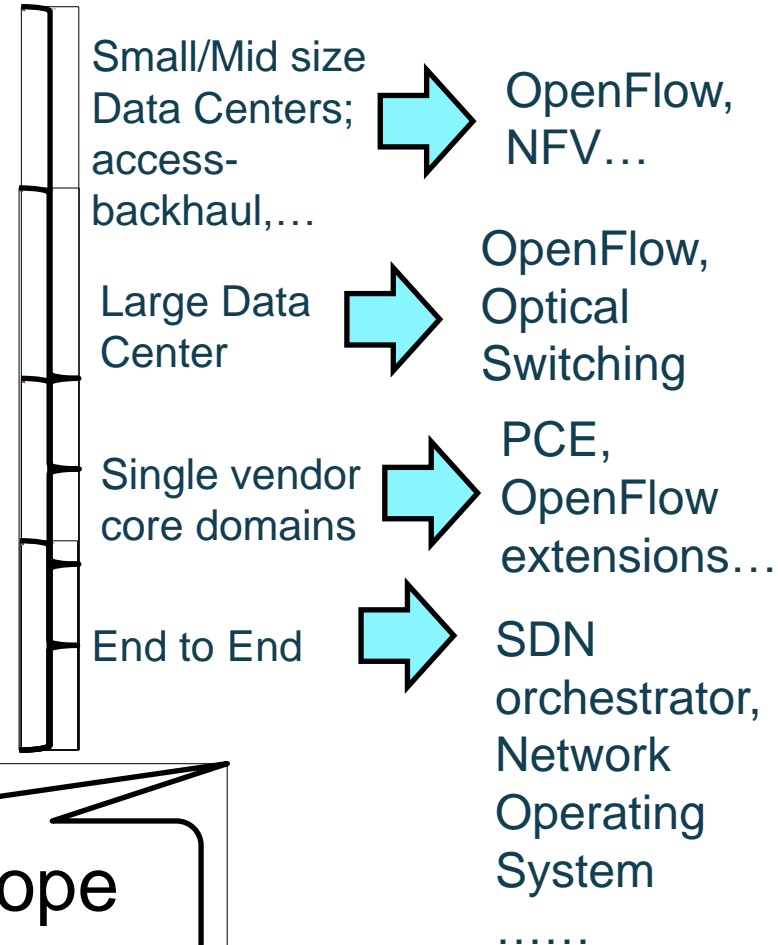
Simpler OSS to manage the SDN controller

Why SDN?

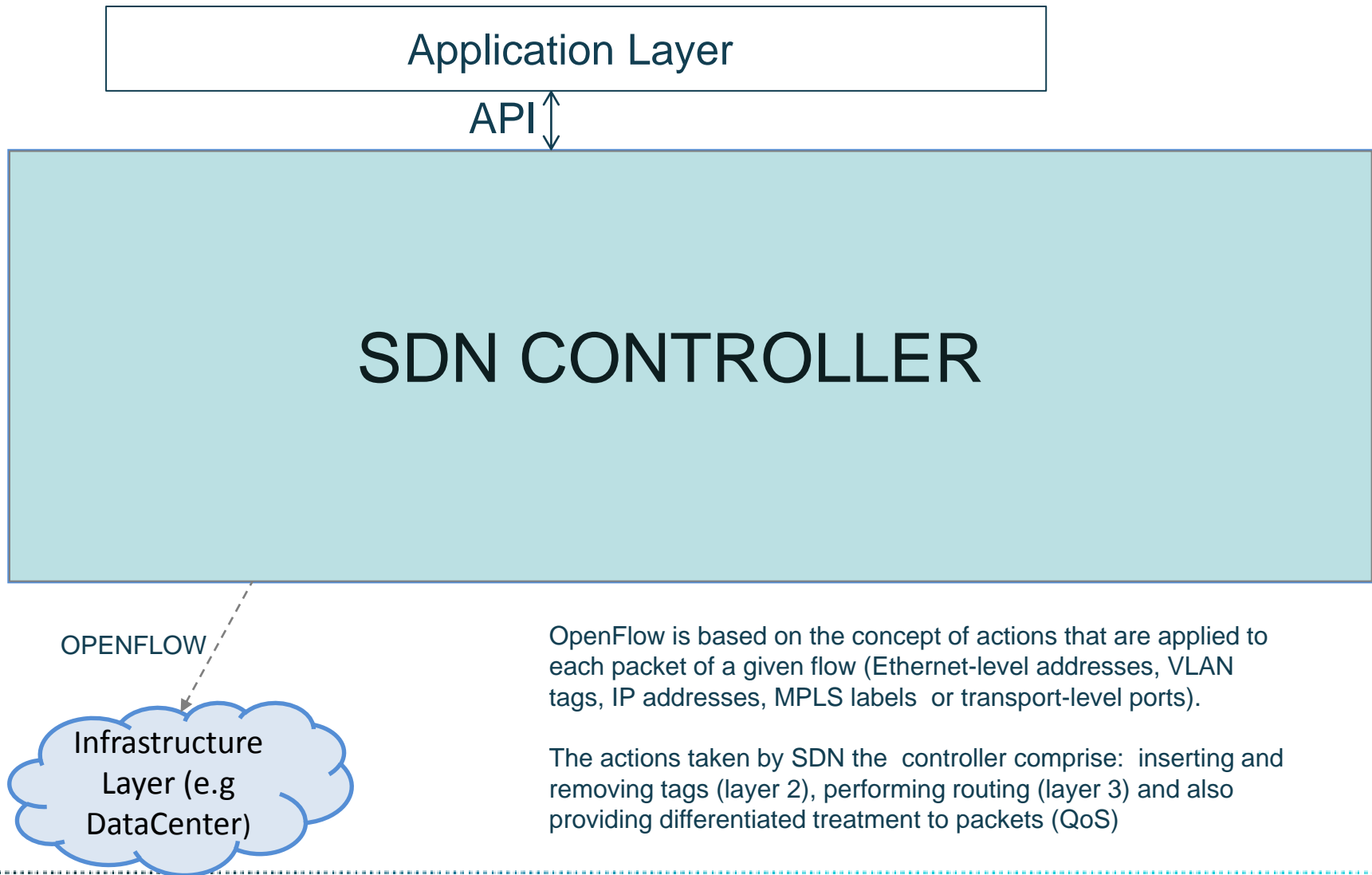
- Low cost hardware
- Increased service control scalability
- Data plane programmability
- Simpler and flexible OSS

How to implement SDN?

- Low cost hardware -> **low capacity nodes**
- Increased service control scalability -> **service edge nodes**
- Data plane programmability -> **single vendor domains**
- Simpler and flexible OSS -> **heterogenous and multi-technology scenarios**



IDEALIST SDN scope



OpenFlow is based on the concept of actions that are applied to each packet of a given flow (Ethernet-level addresses, VLAN tags, IP addresses, MPLS labels or transport-level ports).

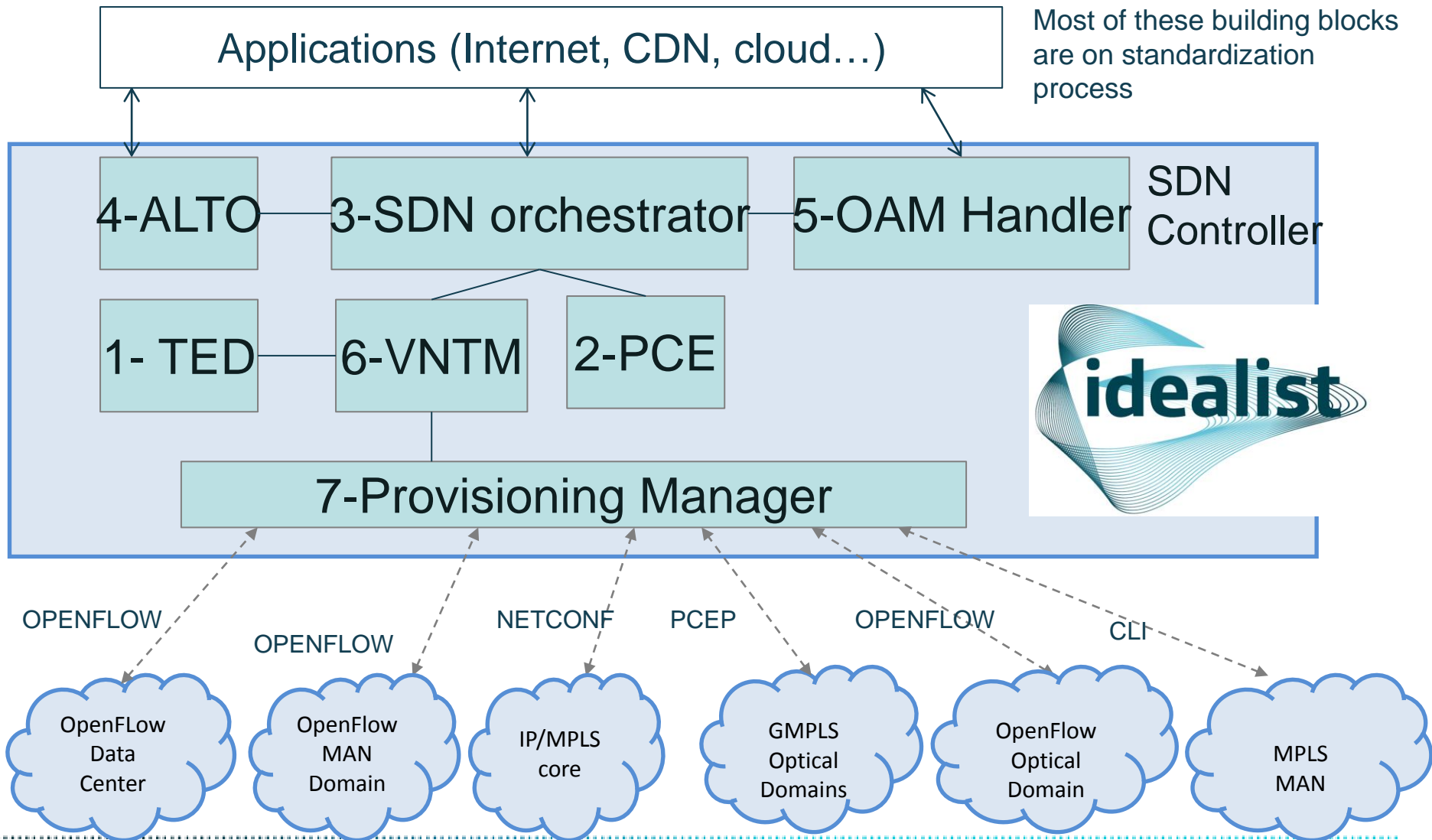
The actions taken by SDN the controller comprise: inserting and removing tags (layer 2), performing routing (layer 3) and also providing differentiated treatment to packets (QoS)

Main actions to be taken by the SDN controller in E2E networks

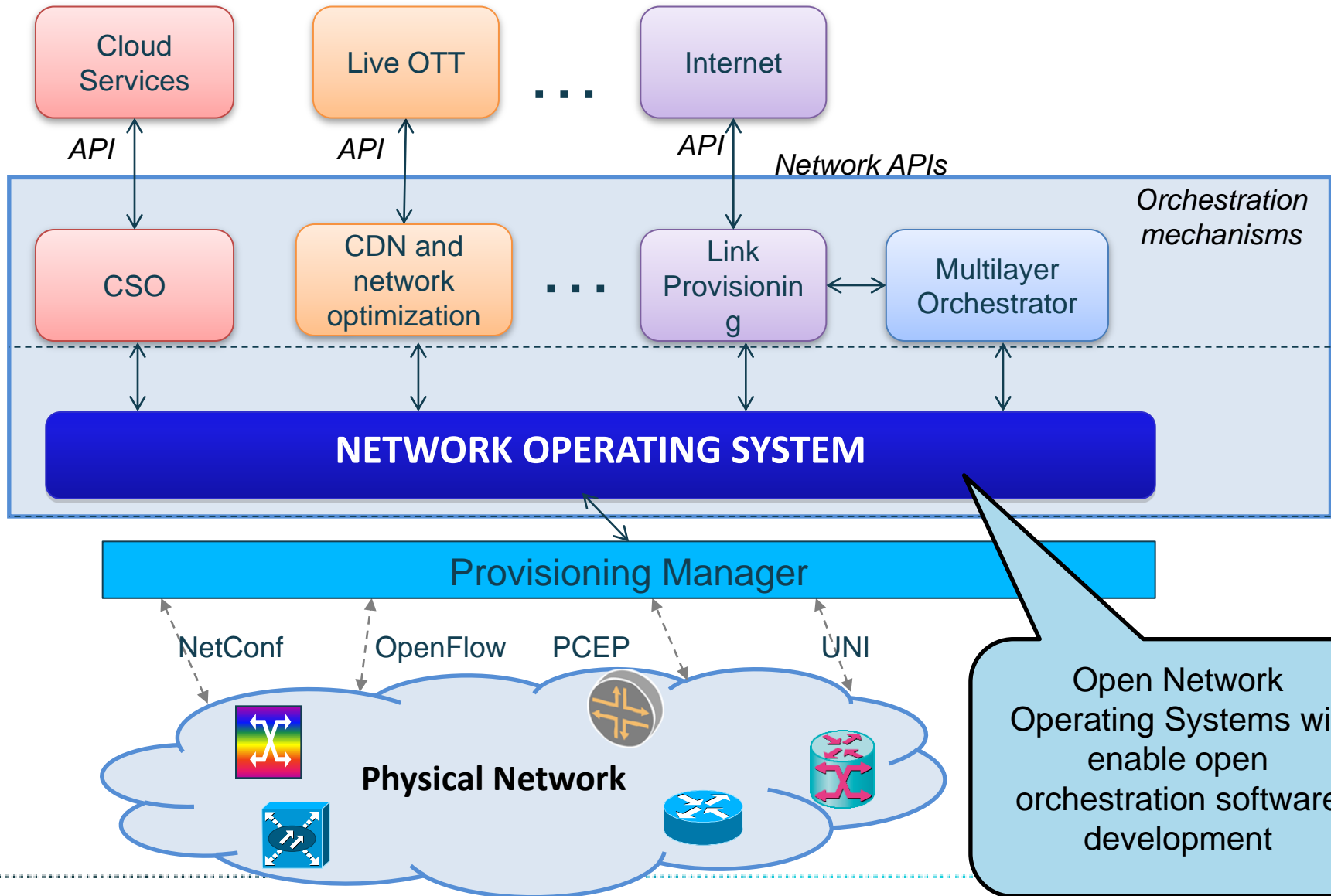
- 1) Discovery of network resources
- 2) Routing, path computation
- 3) Automated network orchestration in response to changing network conditions and service requirements
- 4) Network resources abstraction to application layer
- 5) QoS control and performance monitoring
- 6) Multilayer interworking
- 7) Multidomain/multivendor network resources provisioning through different control domains (e.g OpenFlow DataCenter, OpenFlow MAN, GMPLS optical transport...)

E2E networks might be pure OpenFlow based one day, but the migration process will take some time

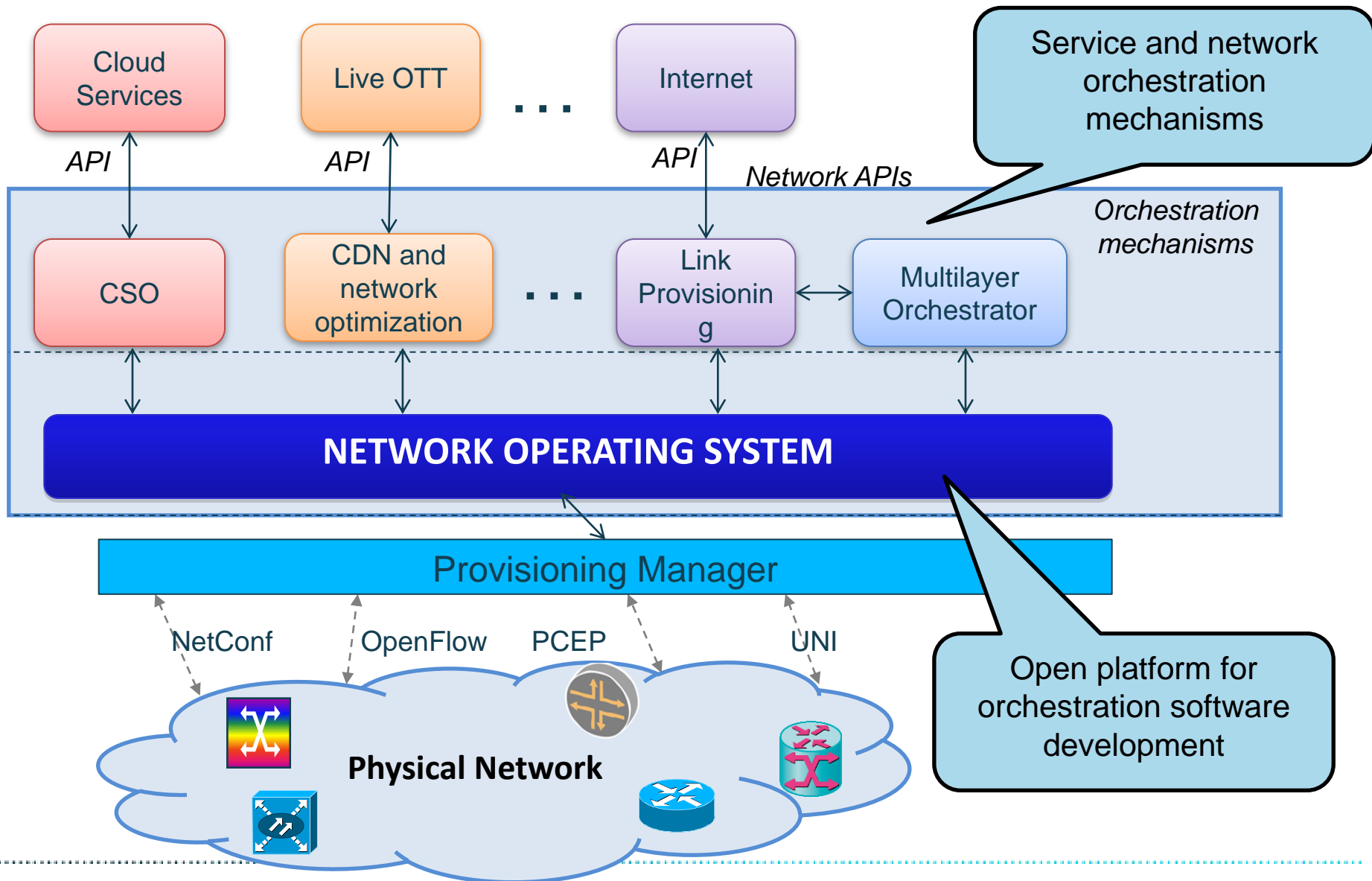
IDEALIST approach: Modular and standard SDN controller



Multiple workflows inside the SDN Orchestrator



List of potential topics for future collaboration EU-Mexico



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