

A microscopic image of plant cells, showing a network of green cell walls against a light blue background. A semi-transparent blue rectangular box is overlaid on the right side of the image, containing text and the Telefónica logo.

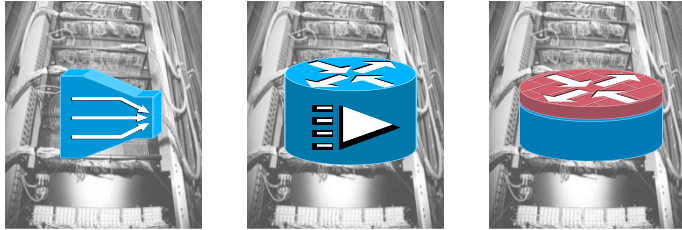
## News from the NFV Front

Update on NFV and how it fits  
with other I{E,R}TF activities

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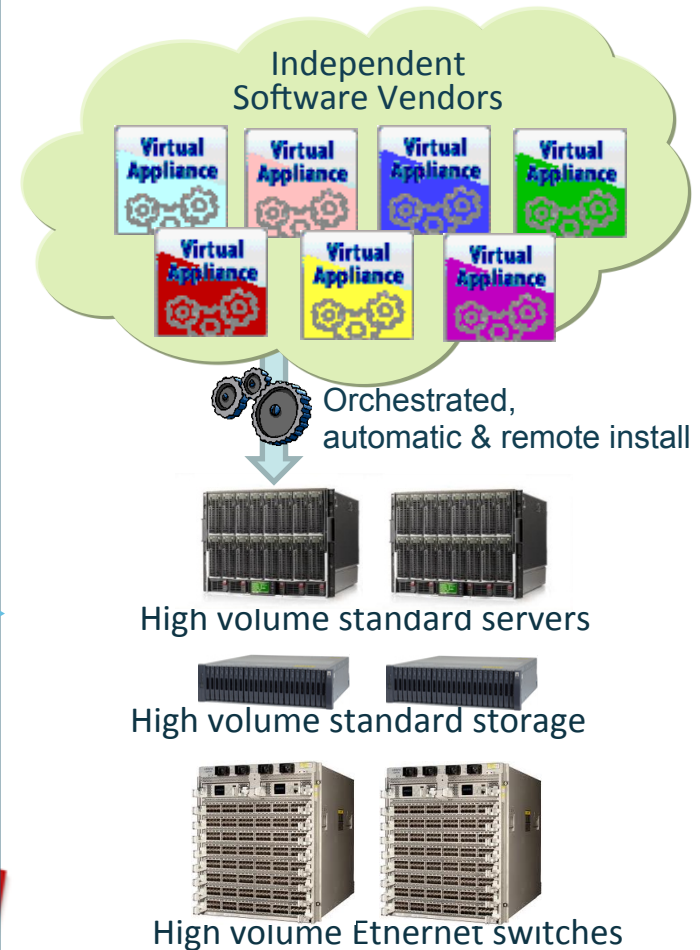
# Setting the Ground

## Traditional Network model



- Network functionalities are based on specific HW&SW
- One physical node per role

## Virtualised Network model



Effect of **scale** (better statistical multiplexing)

Reduction of geographical **dispersion** of HW

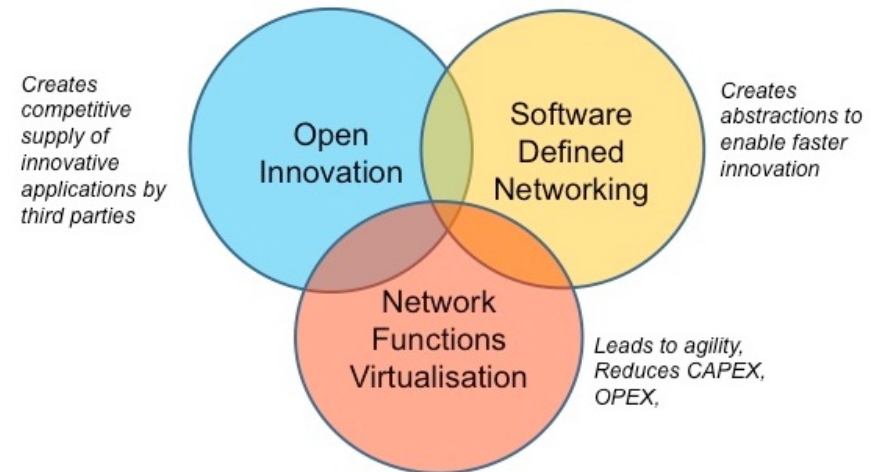
Reuse same HW for different role when no longer applicable

↓ CAPEX

↓ OPEX

# The ETSI NFV ISG

- Industry Specification Group (ISG) under the auspices of ETSI
  - More than 100 member organisations
- Open membership
  - ETSI members sign the “Member Agreement”
  - Non-ETSI members sign the “Participant Agreement”
  - Opening up to academia
- Operates by consensus
- Deliverables: White papers addressing challenges as inputs to SDOs
  - Not a standardisation body by itself
  - Recognized ETSI/IETF collaboration

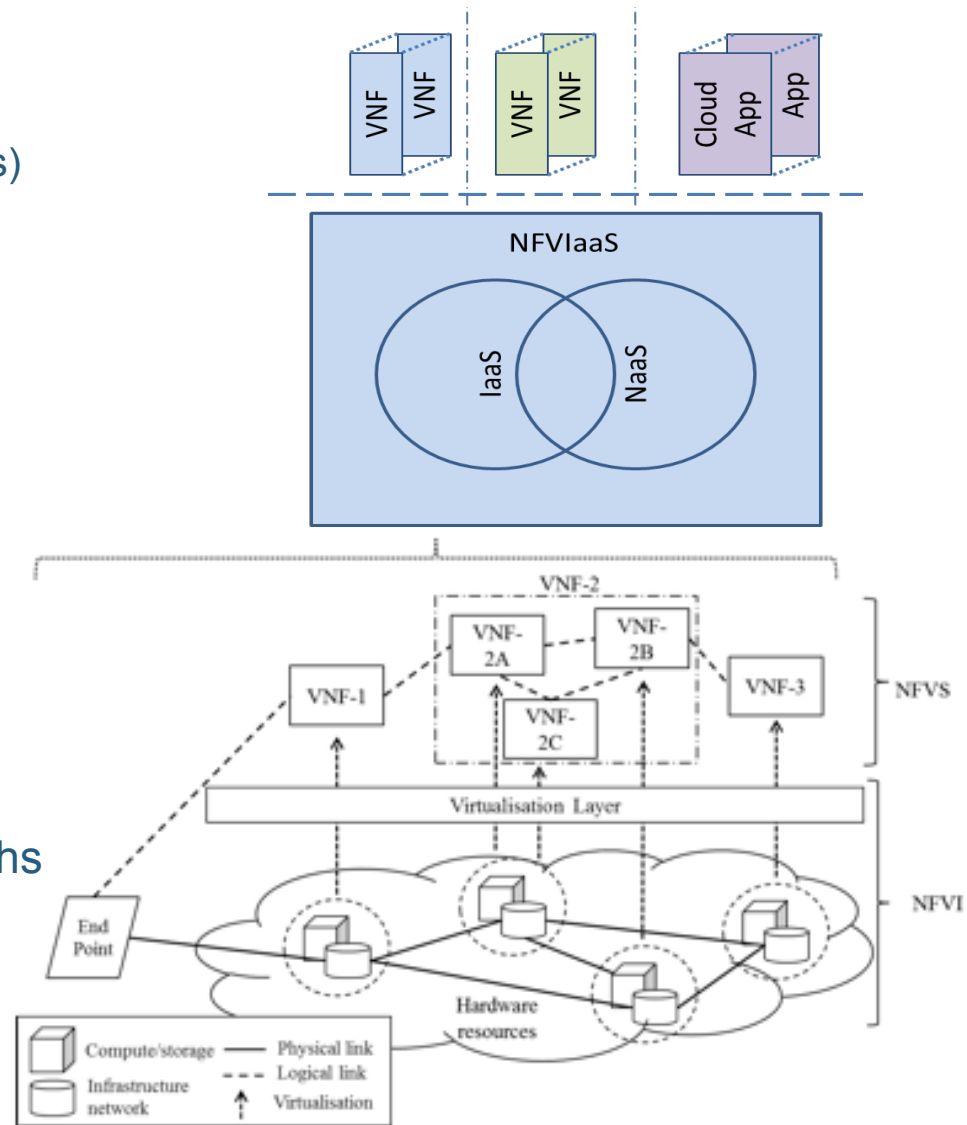


# The Progress So Far

- Architectural working groups
  - Infrastructure - INF
  - Software architecture - SWA
  - Management and orchestration – MANO
- Transversal working groups
  - Reliability and availability - REL
  - Performance and portability - PER
  - Security - SEC
- Focused activity on E2E, ISG-wide aspects
  - Going public by this October
  - Use cases
  - Requirements
  - Architecture
  - Terminology
- A new goal oriented to PoCs
  - Trade shows
  - Labs
  - Experimental networks

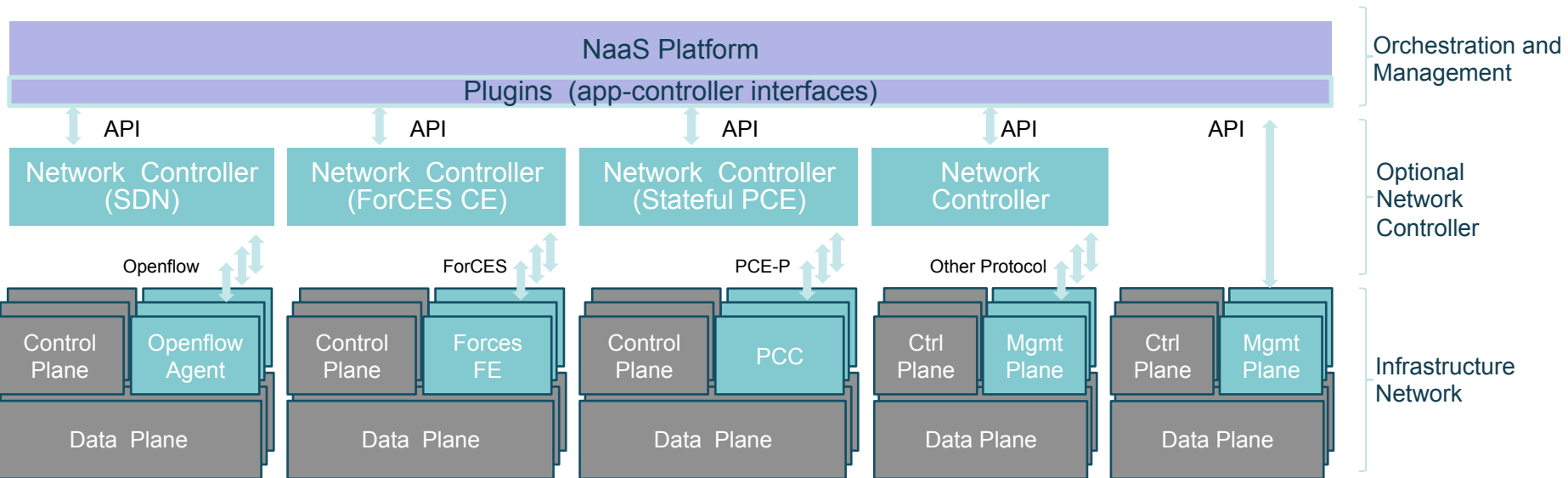
# Use Cases and Architecture

- General service models
  - Forwarding graphs (a.k.a. service chains)
  - VNFaaS / VNPaaS / NFVIaaS
- Specific NF virtualization
  - Mobile environment (base stations, EPC, IMS...)
  - Access network and home environment
  - CDNs
- Framework elements
  - Virtualised Network Functions
  - NFV Infrastructure
  - NFV Management and Orchestration
- E2E services based on forwarding graphs
- Reference architecture
  - Functional blocks
  - Reference points



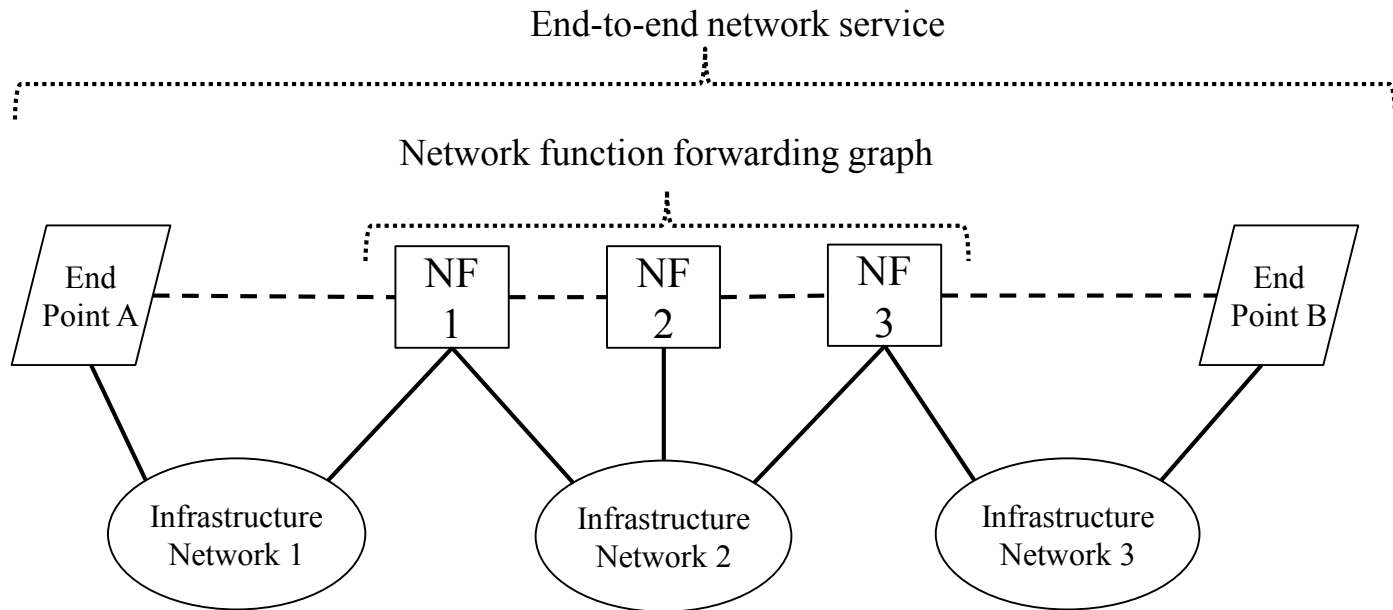
# Relation to I{E,R}TF – Network Abstractions

- The double dimension of networking in NFV
  - The functions being virtualized
  - The infrastructure network supporting VNFs
- Abstractions are required
  - Orchestration
  - Lifecycle management
  - Attachment points
- WGs related to network abstraction and programmability
  - SDNRG
  - FORCES
  - I2RS
  - ...



# Relation to I{E,R}TF – Service Chains

- An end-to-end network service can be defined as a forwarding graph of network functions and end points/terminals
  - “What” an operator provides to customers



- First direct connection between NFV and a (potential) IETF work area
  - Including the key cohabitation aspects

# Relation to I{E,R}TF – Use Cases and PoCs

- CDN
  - The obvious connection to CDNi
- Access networks and home environment
  - HOMENET
  - PCP
  - ANCP
- Name your favorite virtualization target
- PoCs on these and other environments
  - Bits-and-Bites
  - PoC reporting
- Will a section on “Virtualization Considerations” eventually appear?



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