

## **MATILDA**

A Holistic, Innovative Framework for Design,  
Development and Orchestration of 5G-ready  
Applications and Network Services over Sliced  
Programmable Infrastructure

# THE MATILDA CONSORTIUM



















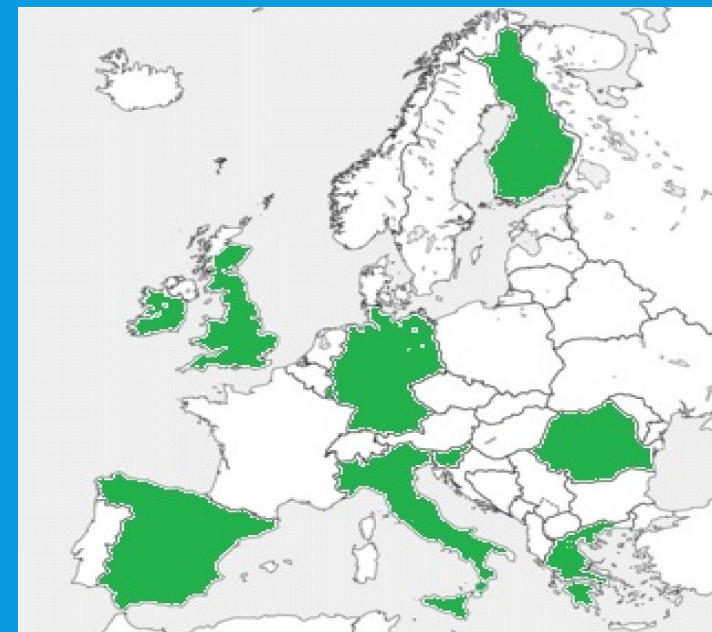









A HOLISTIC, INNOVATIVE FRAMEWORK  
 FOR THE DESIGN, DEVELOPMENT AND  
 ORCHESTRATION OF 5G-READY  
 APPLICATIONS AND NETWORK SERVICES  
 OVER SLICED PROGRAMMABLE  
 INFRASTRUCTURE



# THE MATILDA VISION

## The vision of MATILDA is

- To design and implement a novel holistic 5G end-to-end services operational framework,
  - By tackling the overall lifecycle of design, development and orchestration of 5G-ready applications and 5G network services over a programmable infrastructure
  - By following a unified programmability model and a set of control abstractions

## MATILDA aims

- To devise and realize a radical shift in the development of software
  - for 5G-ready applications
  - for virtual and physical network functions and network services

## ...through

- the adoption of a unified programmability model
- the definition of proper abstractions
- the creation of an open development environment that may be used by application as well as network functions developers.

# GOALS OF MATILDA



**Design and develop 5G-ready applications;** applications able to take advantage of 5G programmable infrastructure.



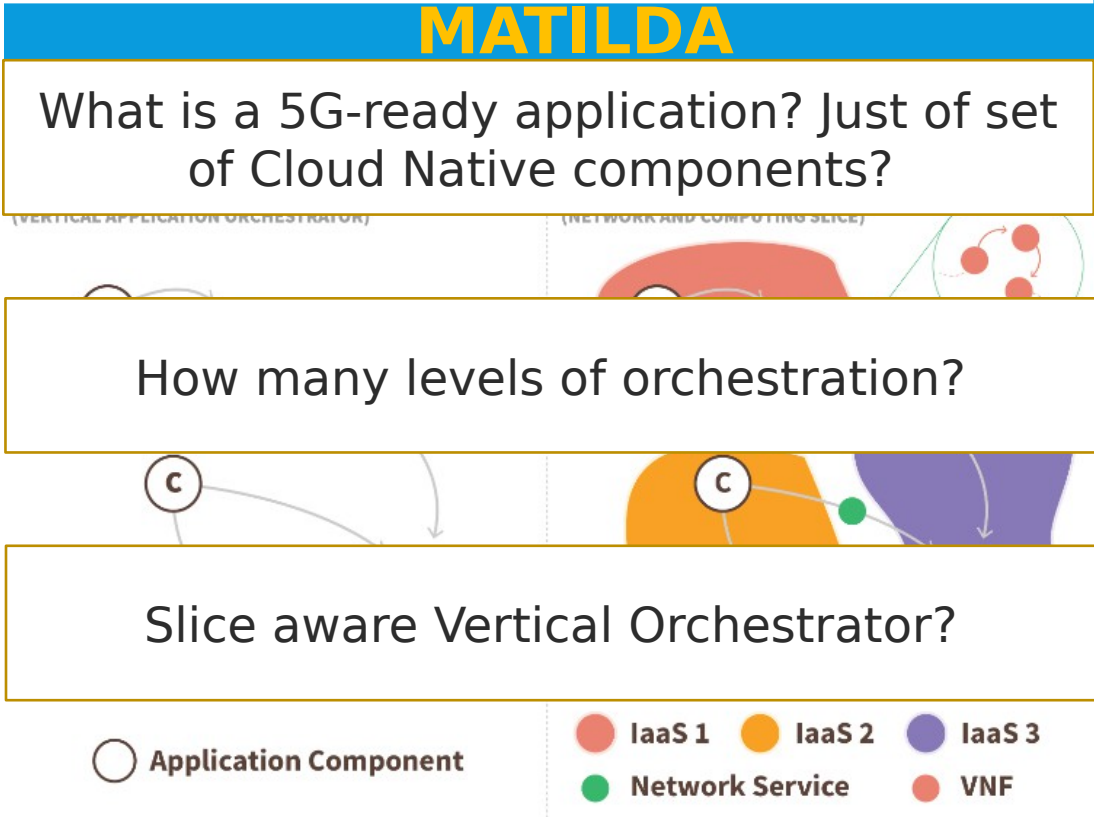
**Optimally manage and provide services/applications** through a set of **intelligent orchestration** mechanisms.



**Dynamically create and manage application-aware network slices** able to serve 5G-ready application needs.



**Separation of concerns** among **vertical applications** and **network services** orchestration.



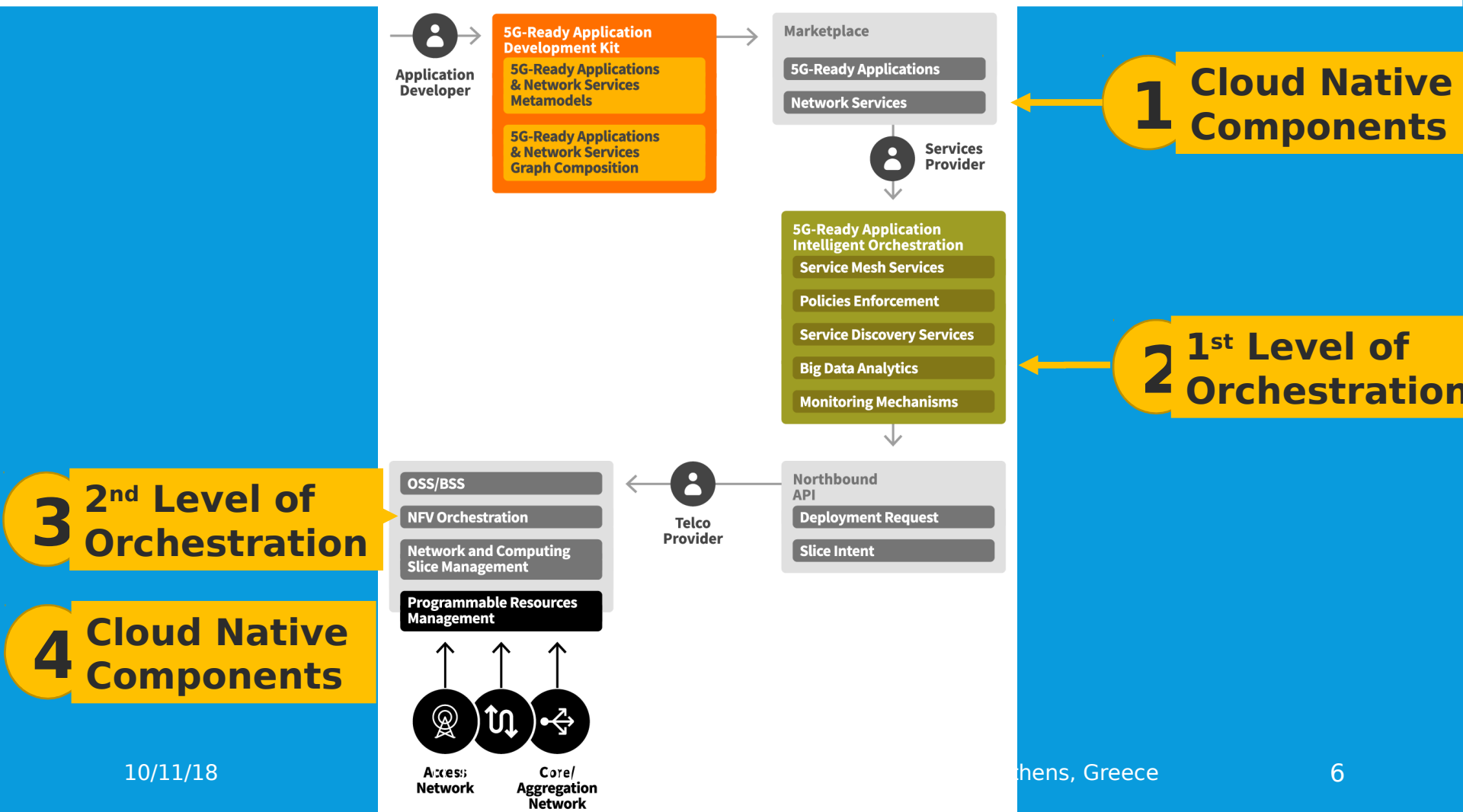
# 5G-READY APP DEFINITION

- “A **5G-ready** application is a **distributed-by-nature application** consisting of **cloud native components** that **rely on a service mesh** as a means on **network abstraction**”

## Innovation Aspects

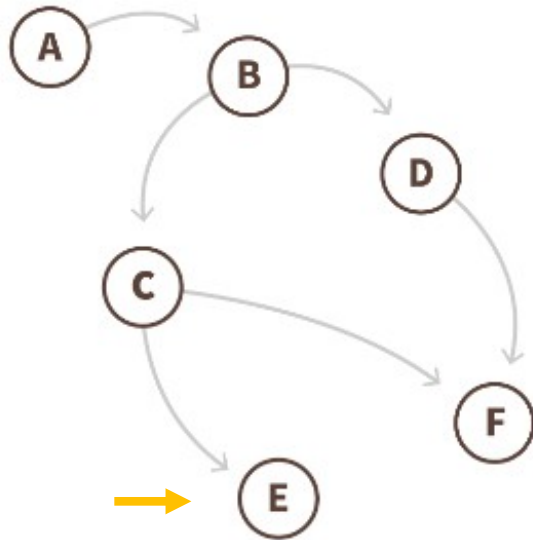
- MATILDA will provide an **interplay** between Vertical Orchestrator and Telco Provider’s orchestration mechanisms
- Based on the 5G-ready application definition, MATILDA will deliver **normative** models for **expressing deployment and execution requirements** for Service Meshes
- Based on the models, MATILDA will offer sophisticated mechanisms that will infer and manage the **optimal Slice** based on the requirements of the Vertical App
- MATILDA will combine **NFV and Edge resource management** in order to facilitate the operation of Service Meshes

# ARCHITECTURAL FLOW



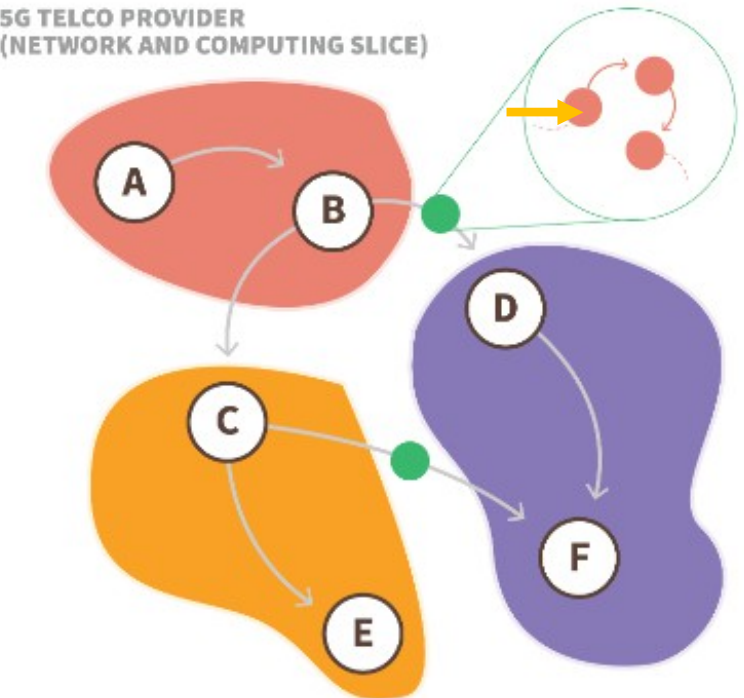
# SEPARATION OF CONCERNS AMONG ORCHESTRATION LEVELS

**SERVICE PROVIDER  
(VERTICAL APPLICATION ORCHESTRATOR)**



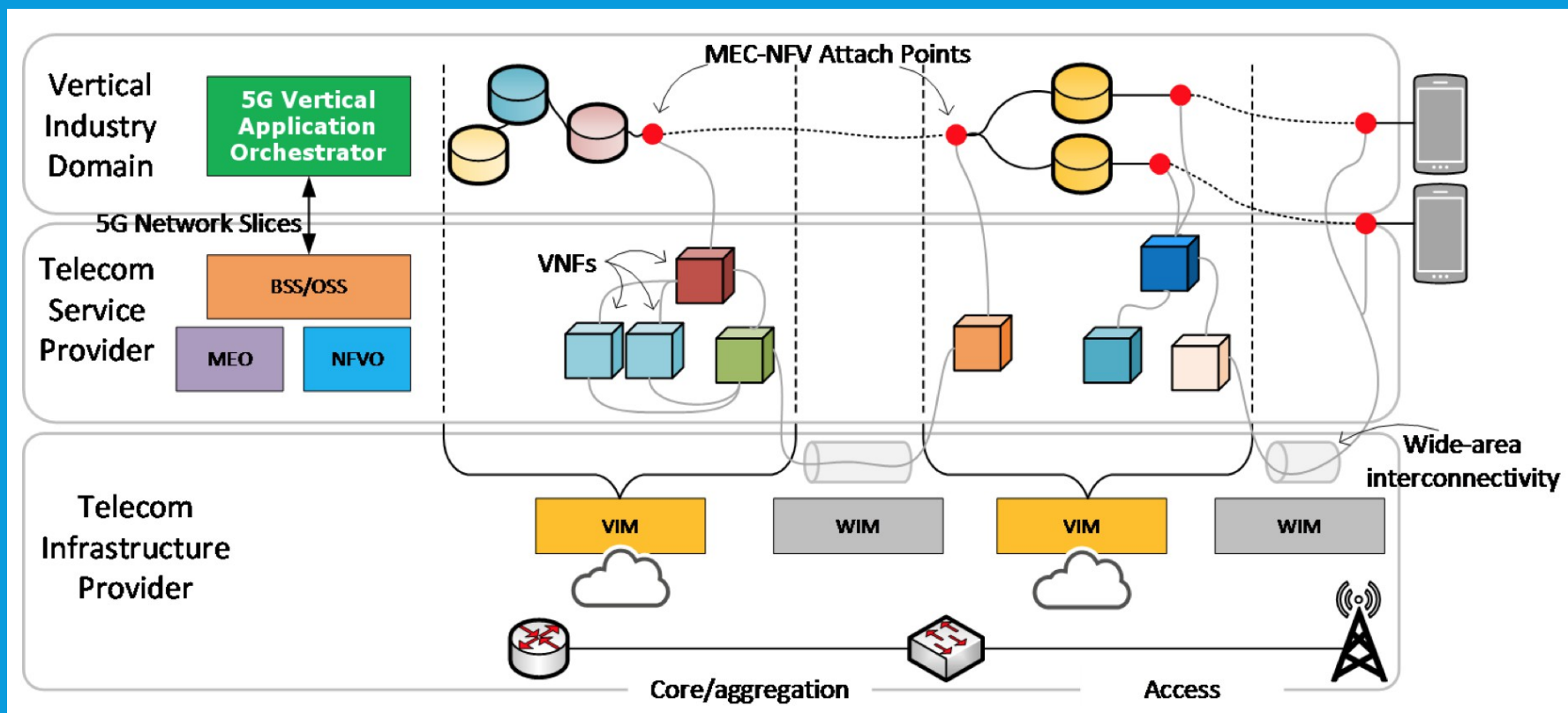
○ Application Component

**5G TELCO PROVIDER  
(NETWORK AND COMPUTING SLICE)**



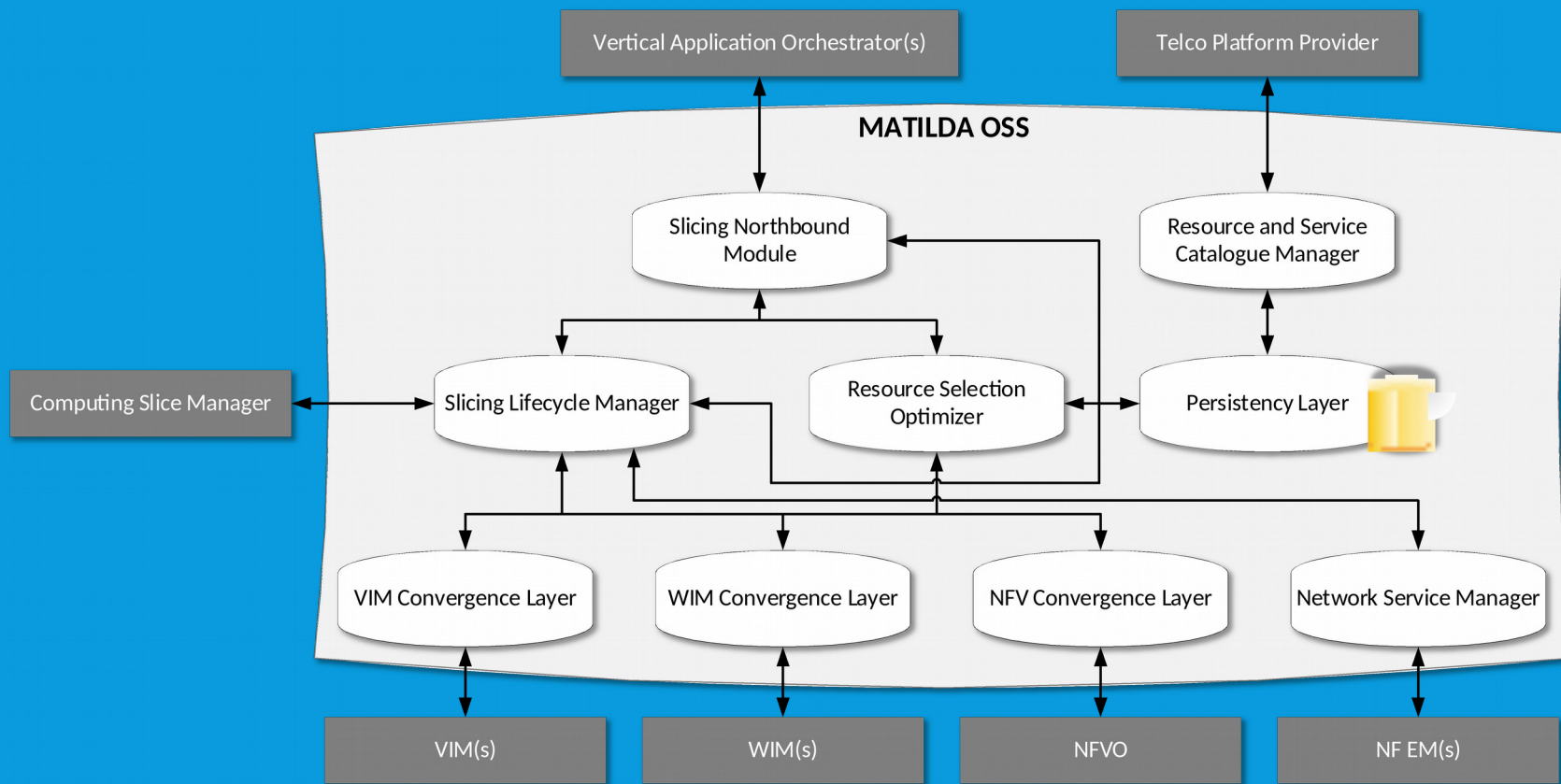
● IaaS 1    ● IaaS 2    ● IaaS 3  
 ● Network Service    ● VNF

# APPLICATION-AWARE NETWORK SLICES

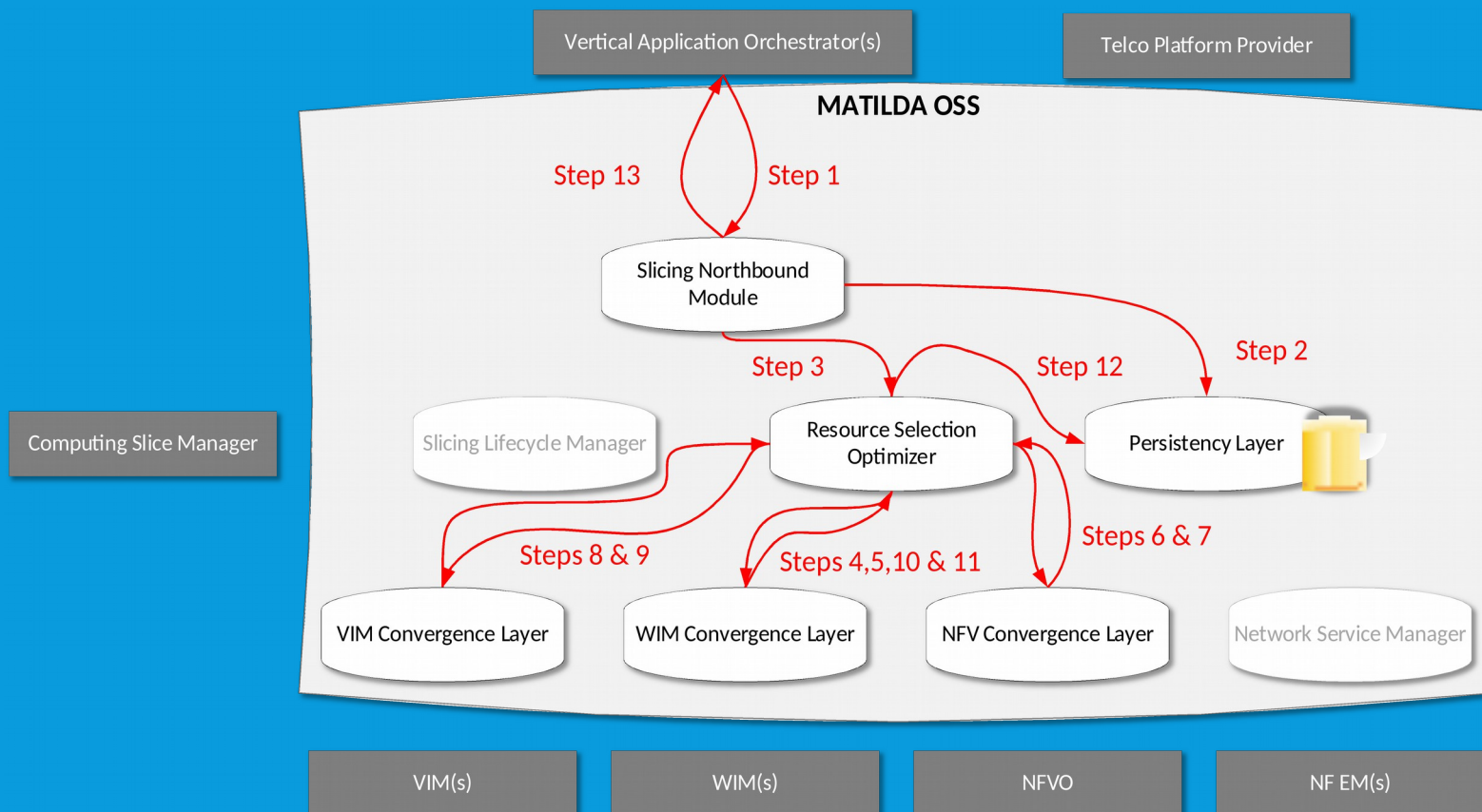




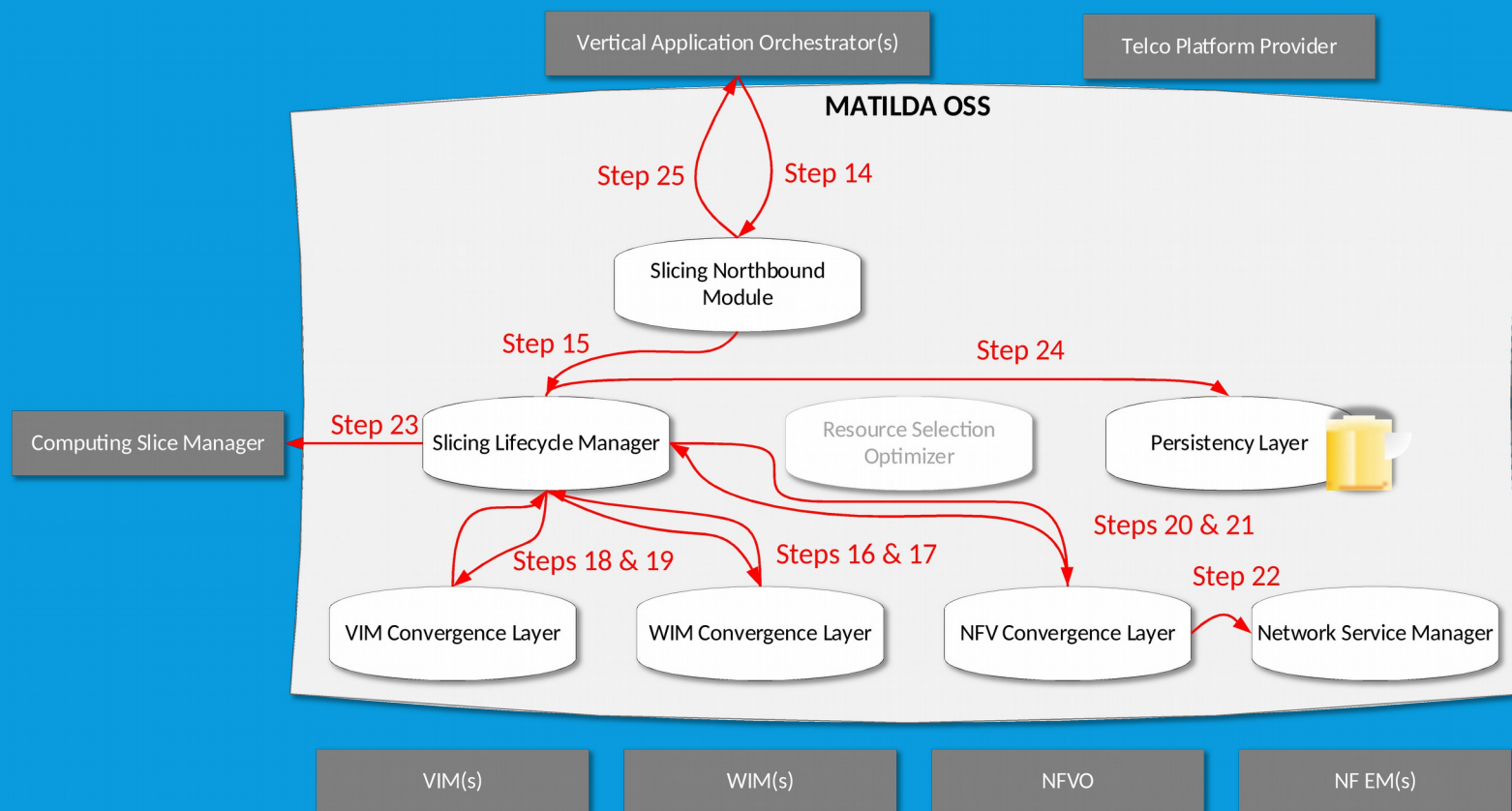
# MATILDA OSS



# SLICE CREATION – PHASE 1



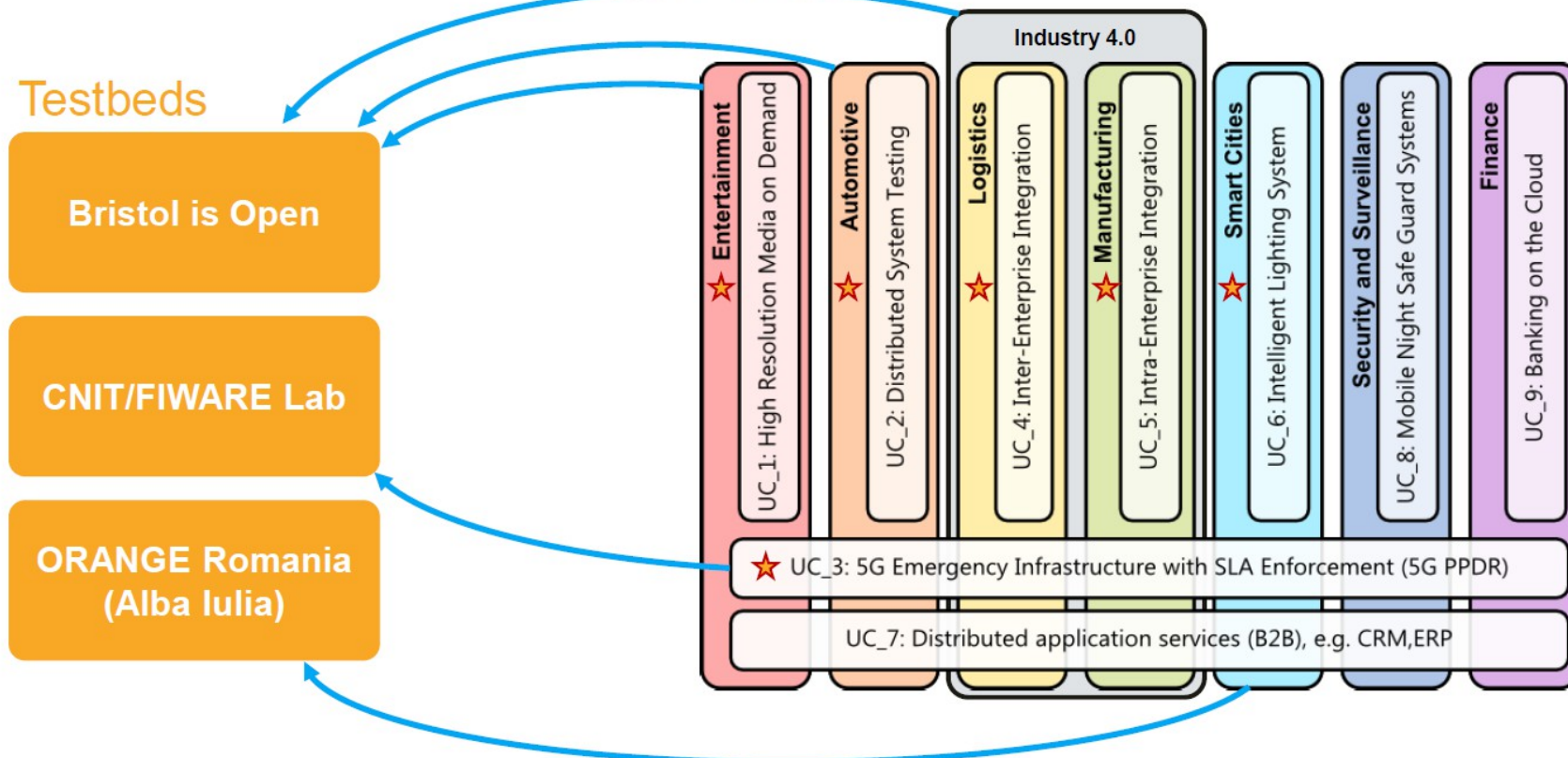
# SLICE CREATION – PHASE 2



# TESTBEDS AND USE-CASE APPLICATIONS

Demos

Testbeds



Thank you!