



MATILDA: A holistic, innovative framework for the design, development and orchestration of 5G-ready applications and network services over sliced programmable infrastructure

Dr. A. KOURTIS

Research Director

Institute of Informatics & Telecommunications

NCSR DEMOKRITOS

List of partners



MATILDA

PP	Partner Full Name	Short Name	Nationality
P1	Consorzio Nazionale Interuniversitario per le Telecomunicazioni	CNIT	IT
P2	ATOS Spain SA	ATOS	ES
P3	ERICSSON	ERICSSON	IT
P4	INTRASOFT INTERNATIONAL SA	INTRA	LU
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P7	Association Platform Telecom	COMM4INNOV	FR
P8	GIOUMPITEK Meleti Schediasmos Ylopoiisi kai Polisi Ergon Pliroforikis EPE	UBITECH	GR
P9	INTERNET INSTITUTE Ltd.	ININ	SI
P10	Incelligent	INC	GR
P11	SUITE5 Data Intelligence Solutions	SUITE5	IE
P12	NATIONAL CENTER FOR SCIENTIFIC RESEARCH "DEMOKRITOS"	NCSR	GR
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P16	ITALTEL	ITL	IT
P17	BIBA – BREMER INSTITUT FÜR PRODUKTION UND LOGISTIK GMBH	BIBA	DE
P18	EXXPERSYSTEMS GMBH	EXXPERT	DE

Total budget : 6.664.458 Euros



Introduction

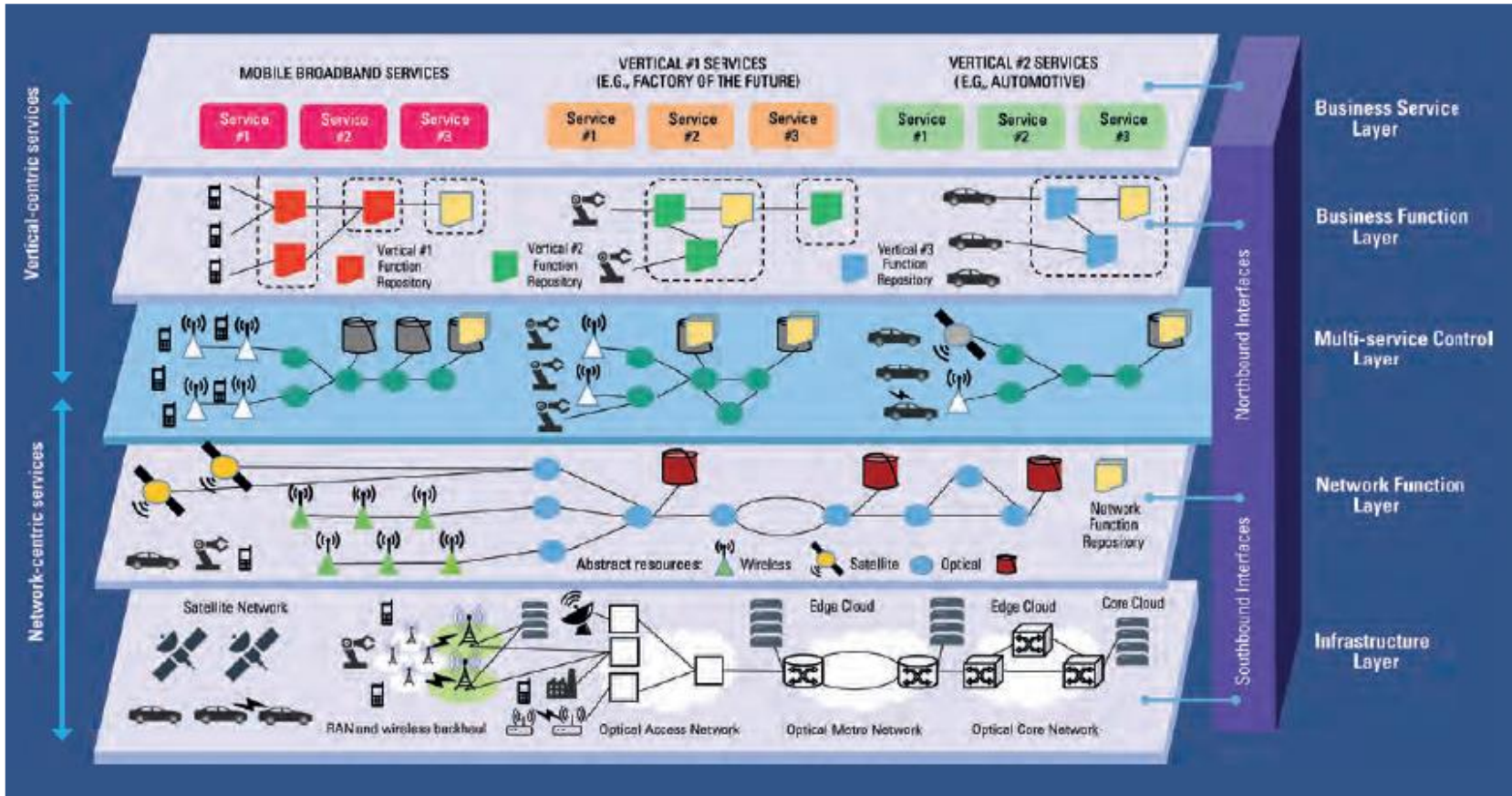
- The **integration of verticals** is considered as one of the key differentiators between 4G and 5G systems to open global markets for innovative business models.
- **Vertical industries' needs** should be considered as **drivers of 5G networks** design and development with high priority.
- **Set of services per vertical industry** are going to provide a **diverse set of requirements** in terms of provisioning and management of infrastructure resources.
- 5G networks have to be operated by **intelligent orchestration platforms** able to support end-to-end applications and services over a programmable network, compute and storage infrastructure.



Challenges tackled in MATILDA :

- Define **appropriate abstractions** for the design of **5G-ready** applications.
- Develop a programming and verification platform for **developing and verifying 5G-ready applications** and **network services**.
- Support mechanisms for **automated or semi-automated translation** of application-specific requirements to programmable infrastructure requirements.
- Support **intelligent orchestration mechanisms** for managing the entire lifecycle of 5G-ready applications and network services.
- Support mechanisms for **multi-site network, compute and storage resource management**.
- Involve **key actors of the value chain** in the operational model.

Layering of a 5G ecosystem



“5G empowering vertical industries” report, 5G-PPP association



Network Slice

- A **network slice** regards the **part of the infrastructure** (consisting mainly of virtualized resources and virtual/physical network functions) that aims to **support a set of services** and meet the **desired Key Performance Indicators (KPIs)** of the service providers.
- A network slice is **created on demand** based on the available network, compute and storage resources and the requirements imposed on behalf of the services provider.
- Over a network slice, a **set of infrastructure management and application oriented orchestration services** are provided.



MATILDA main objectives

- O1: To enable the **development of network-aware applications** and their **deployment and orchestration over dynamically created network slices**, in order to facilitate **vertical industries** to exploit the 5G ecosystem
- O2: to provide an **open-source development and application/services composition environment** along with a critical mass of VNFs/PNFs made available through the MATILDA marketplace for developing applications.
- O3: to provide a **network-aware applications orchestrator** able to deploy and manage applications over dynamically created network slices. The orchestrator will support a number of **intelligent orchestration mechanisms**, including deployment and runtime policies enforcement, data monitoring, fusion and analysis etc.



MATILDA main objectives

- O4: to provide **dynamic and efficient management of resources, which constitute an application-aware network slice** including the mechanisms for management of the required VNFs.
- O5: to prove the **applicability, usability, effectiveness and value of the MATILDA framework for vertical industries**, demonstrating and testing various services over 5G testbeds.
- O6: to ensure **wide communication and scientific dissemination** of the innovative MATILDA results to the 5G industry verticals, business, research and international community, to realize **exploitation and business planning** of the MATILDA orchestrator, as well as to contribute specific project results to relevant **standardization bodies and the 5G PPP community**.



MATILDA Stakeholders

- **Infrastructure Provider:**
 - **telecommunication provider** offering a programmable infrastructure that may span from the radio-access to the edge, transport and core network;
 - **cloud provider** offering compute and storage services in a programmable way.
- **Application/VNF/PNF Developer: software engineers** that develop 5G applications and/or network functions.
- **Service Provider:** selects one of the available applications and instantiates it over programmable infrastructure resources.
- **Service Consumer:** the entity that is benefited by the operation of the instantiated application, i.e. the **vertical industry clients**.



Thank you !!

Questions ?