



Framework for the Design, Development and Orchestration of 5G-ready Applications and Network Services, over Sliced Programmable Infrastructures

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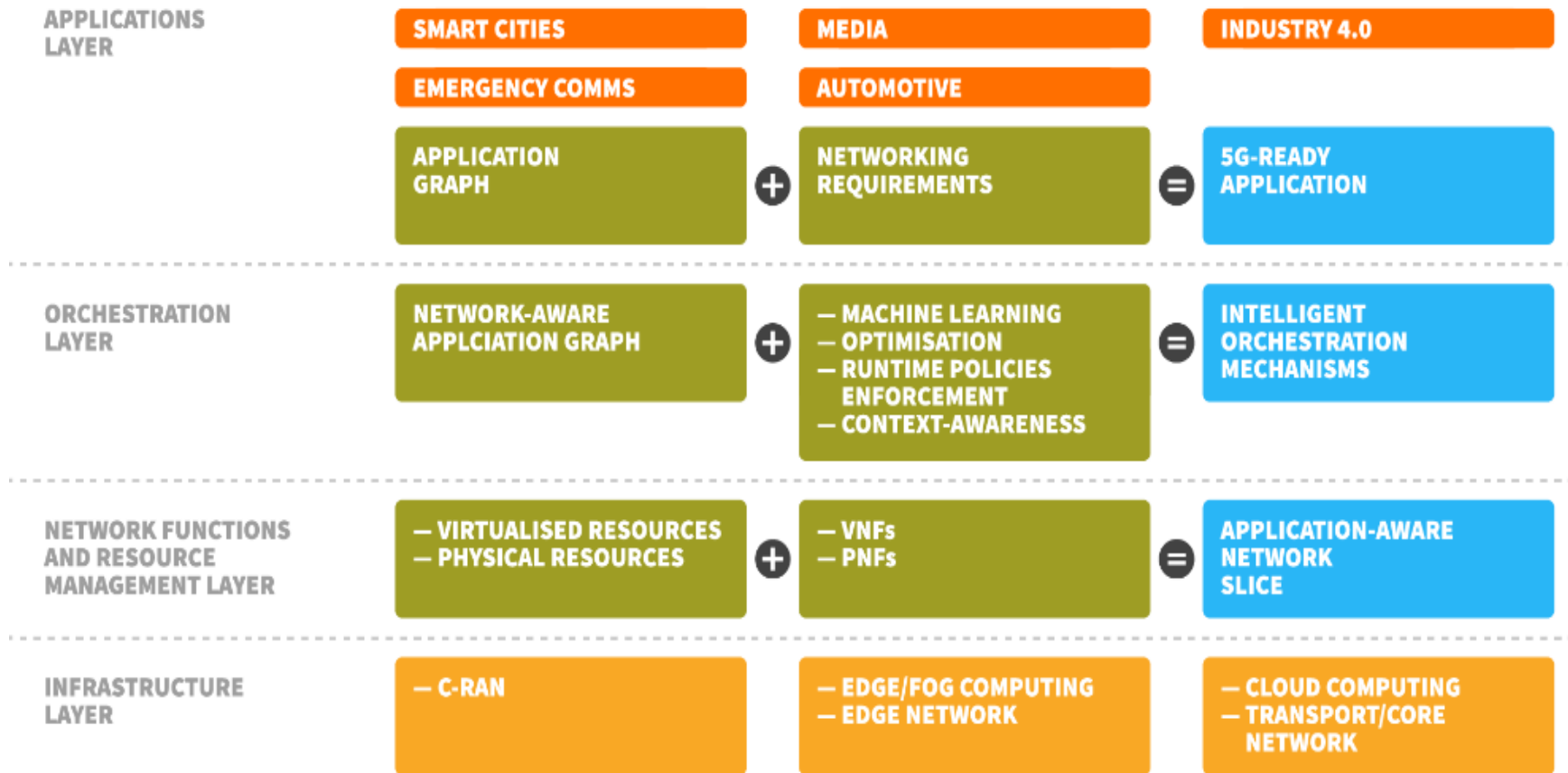


Challenges

- Define **abstractions** for the design of **5G-ready** applications.
- Develop an agile programming and verification platform for **verifying industry vertical 5G-ready applications** and **network services**.
- Support mechanisms for **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 in MATILDA





MATILDA main objectives

- O1: to facilitate **vertical industries** to exploit the full potential of the 5G ecosystem by enabling the **development of network-aware applications**.
- O2: to provide an **open-source development and application/services composition environment** along with a critical mass of VNFs and network-aware chainable application components.
- O3: to provide a **network-aware applications orchestrator** able to deploy and manage applications over the network.
 - The orchestrator is going to support a **set of intelligent orchestration mechanisms**, including deployment and runtime policies enforcement, data monitoring, fusion and analysis and a context awareness engine for inference of knowledge based on the collected information.



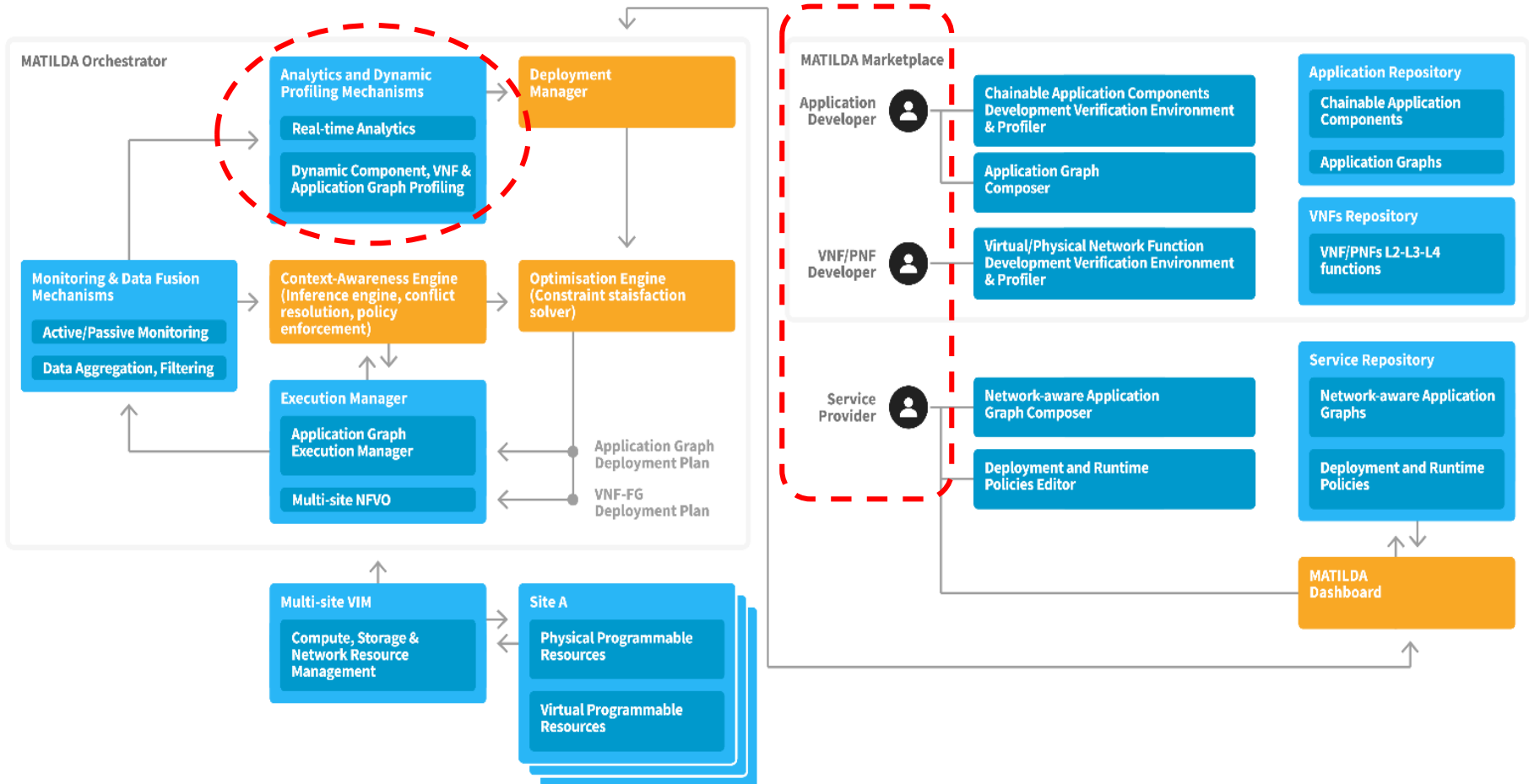
MATILDA main objectives

- O4: to provide **dynamic end efficient management of resources** constituting an application-aware network
- O5: to prove the applicability, usability, effectiveness and value of the MATILDA framework for **vertical** industries.
- O6: to ensure **wide communication and scientific dissemination** of the innovative MATILDA results to the 5G community.

Conceptual Architecture



MATILDA

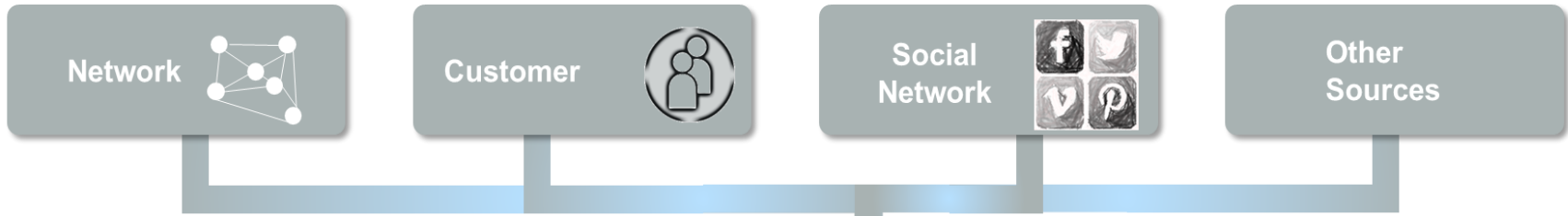


Analytics

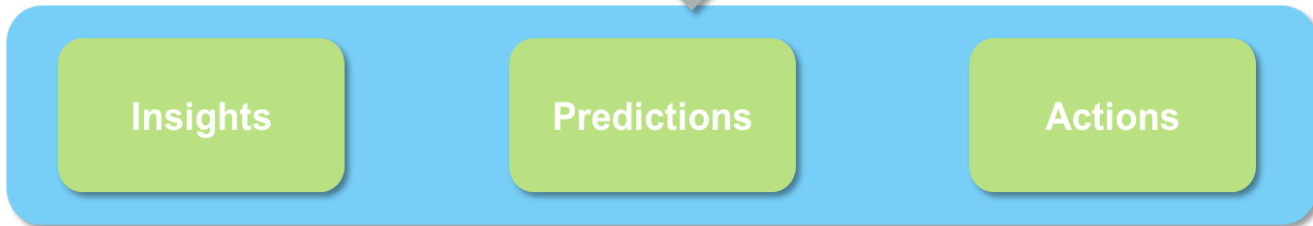
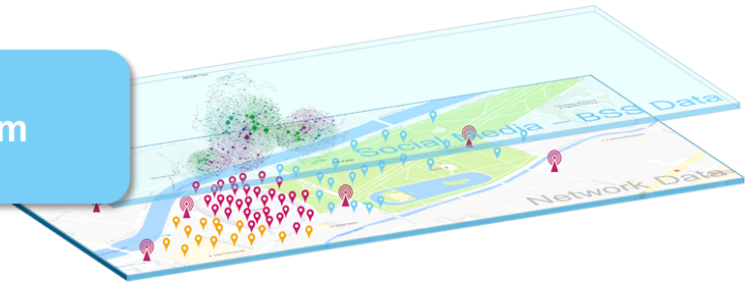


MATILDA

Leverage on big data



Big Data &
Analytics are the foundation



Analytics



Available Data

Data regarding VNF metrics

- available bandwidth
- end-to-end delay
- download and upload speed
- physical radio parameters

Resources usage metrics from Chainable Components or VNFs

- average CPU usage
- memory usage

Application component specific metrics

- average response time
- http requests

Real-time & a posteriori processing



Predictive Analytics

(e.g. classification / regression algorithms, time series forecasting, neural networks etc.)

Analytics Component

Prescriptive Analytics

(e.g. reinforcement learning, what-if analysis etc.)



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Thank You!