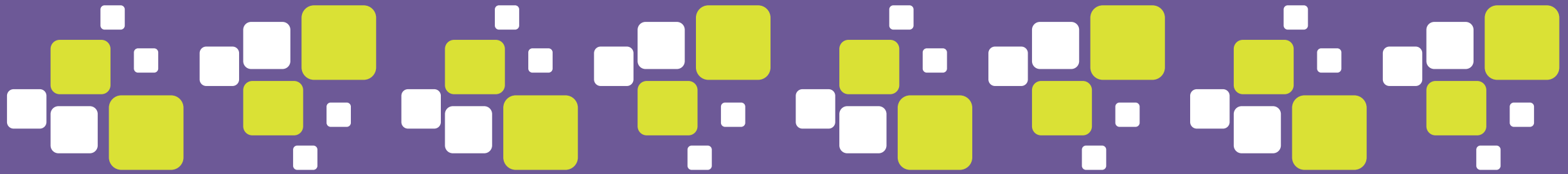
FLUIDOS

Flexible, scaLable, secUre, and decentralIseD Operating System

Lorenzo Moro, Consorzio TOP-IX



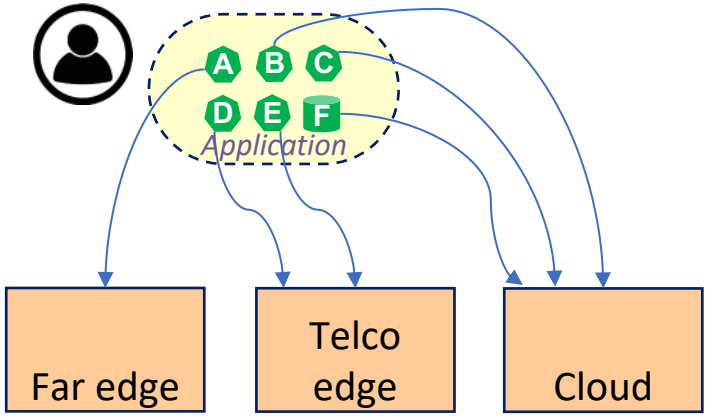
Many silos

IoT/Edge

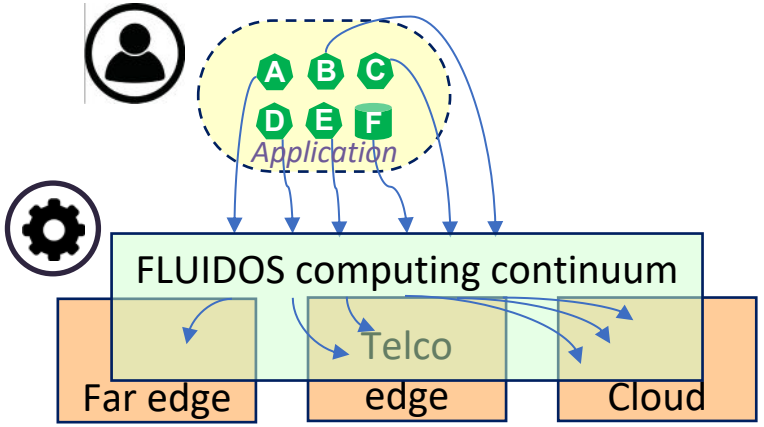
OVHcloud
Tencent Cloud
Google Cloud
aws
ORACLE CLOUD Infrastructure
Alibaba Cloud
DigitalOcean
IBM Cloud
Akamai
Microsoft Azure

Cloud

FLUIDOS is all about transparency



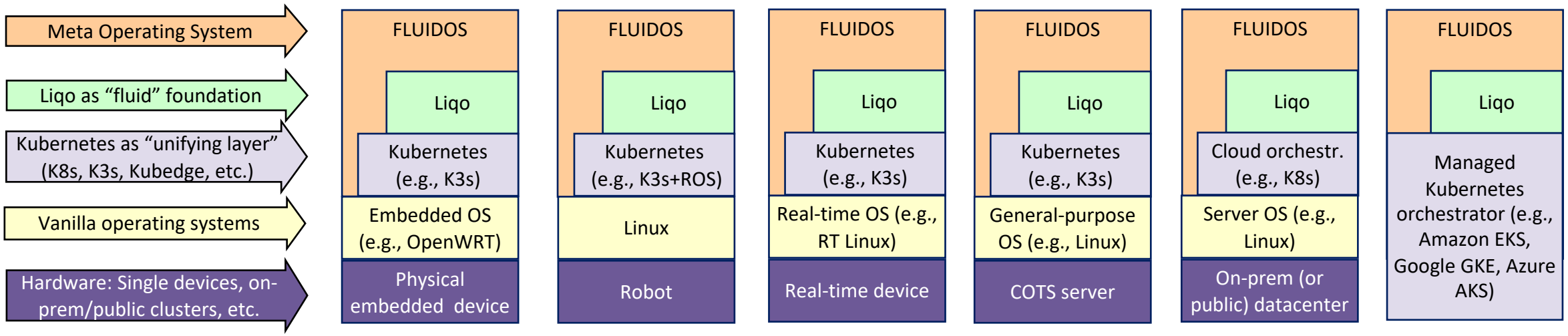
a) Current silos-based computing continuum



b) FLUIDOS computing continuum

The **FLUIDOS computing continuum** defines *multiple*, *dynamic*, *secure* **virtual spaces**, spanning across multiple *technological* domains and *administrative* boundaries, with ***deployment* transparency, *communication* transparency, and *resource* transparency**.

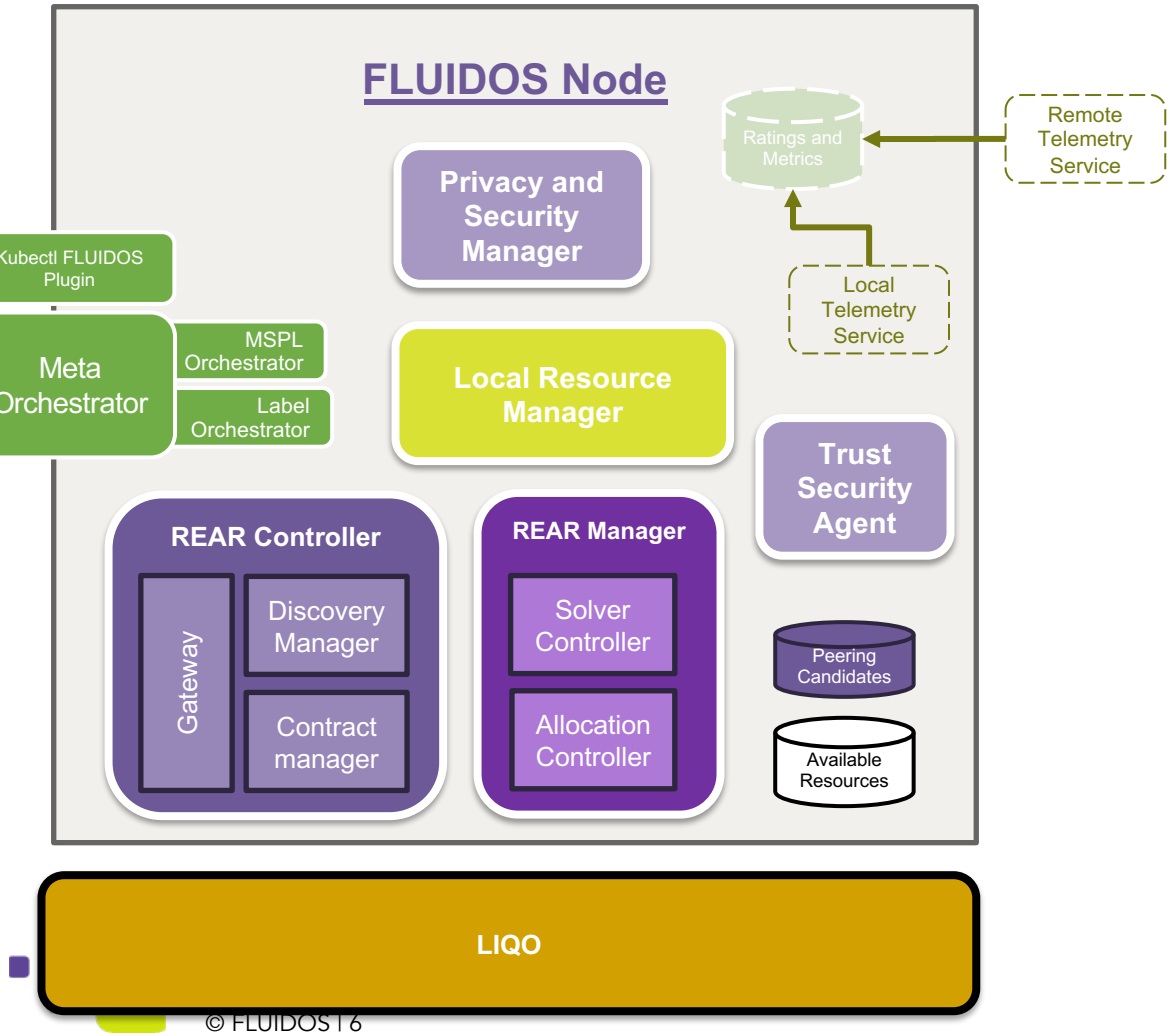
The FLUIDOS stack



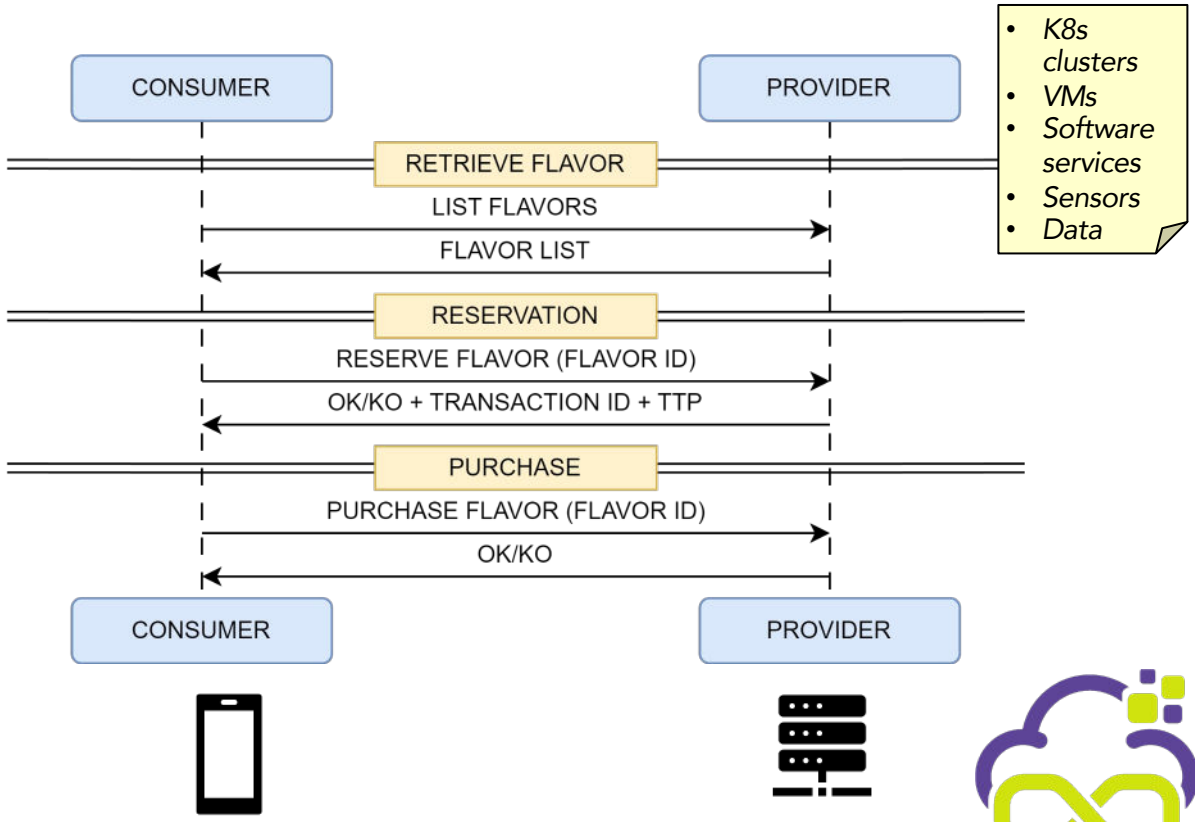
FLUIDOS technological pillars

- Node and Protocols
- Meta-orchestrator
- Security
- Energy
- Open-source

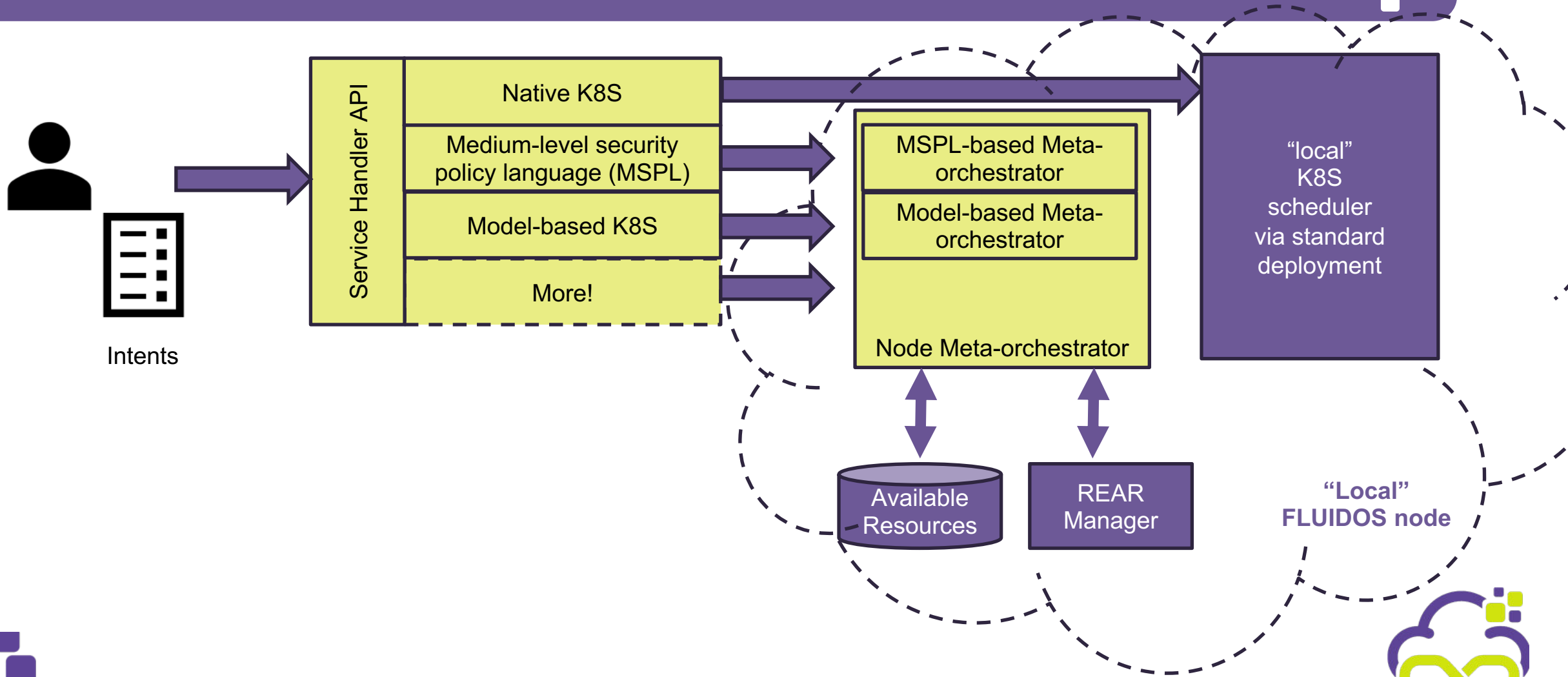
(1) FLUIDOS node and Protocols



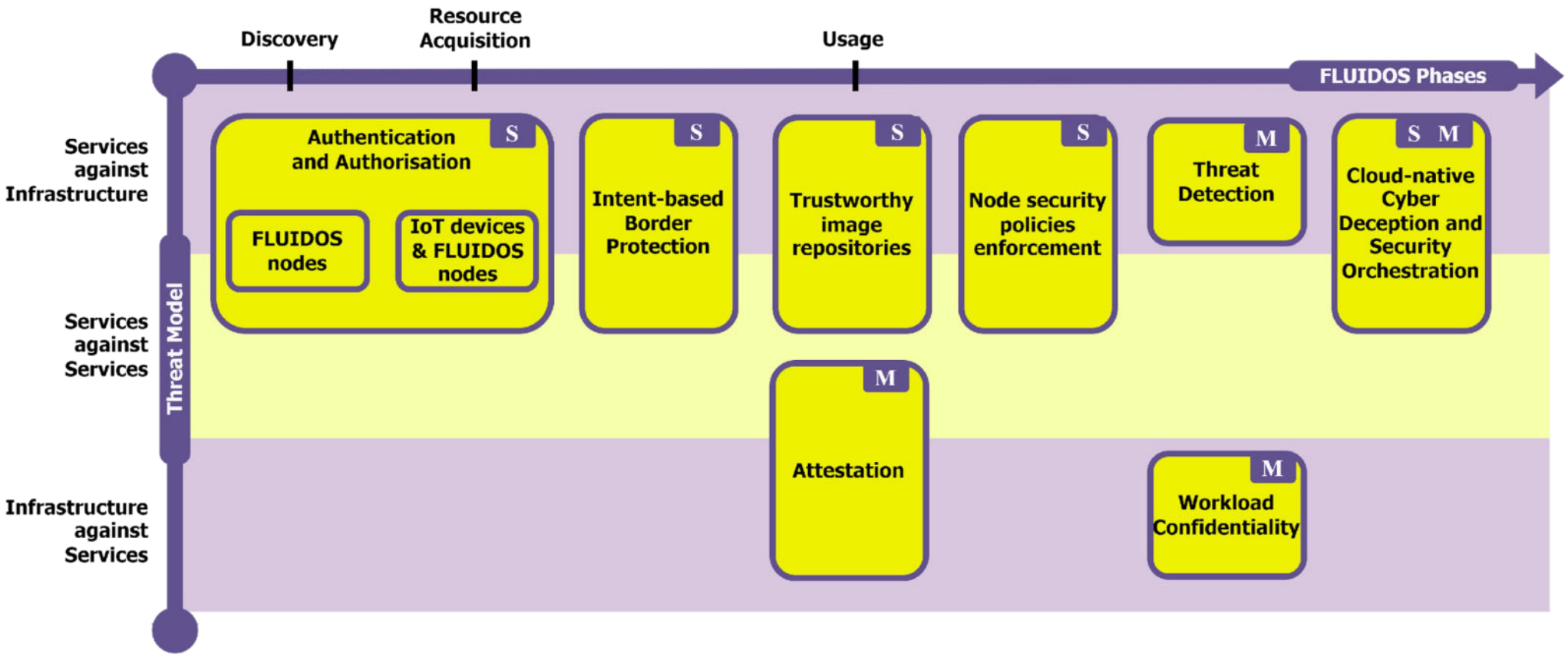
REsource Advertisement and Reservation protocol (REAR)



(2) Meta orchestrator



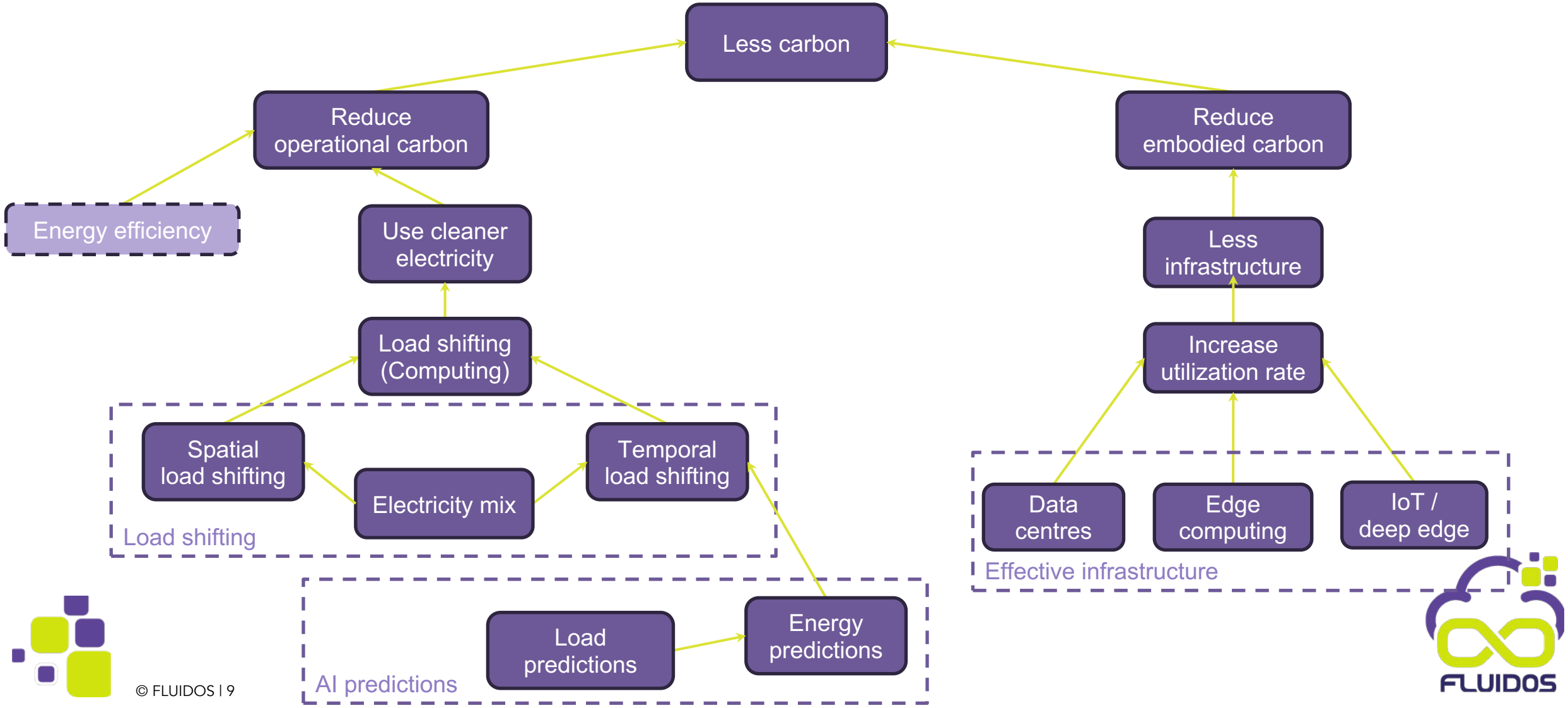
(3) Security



S Software tool

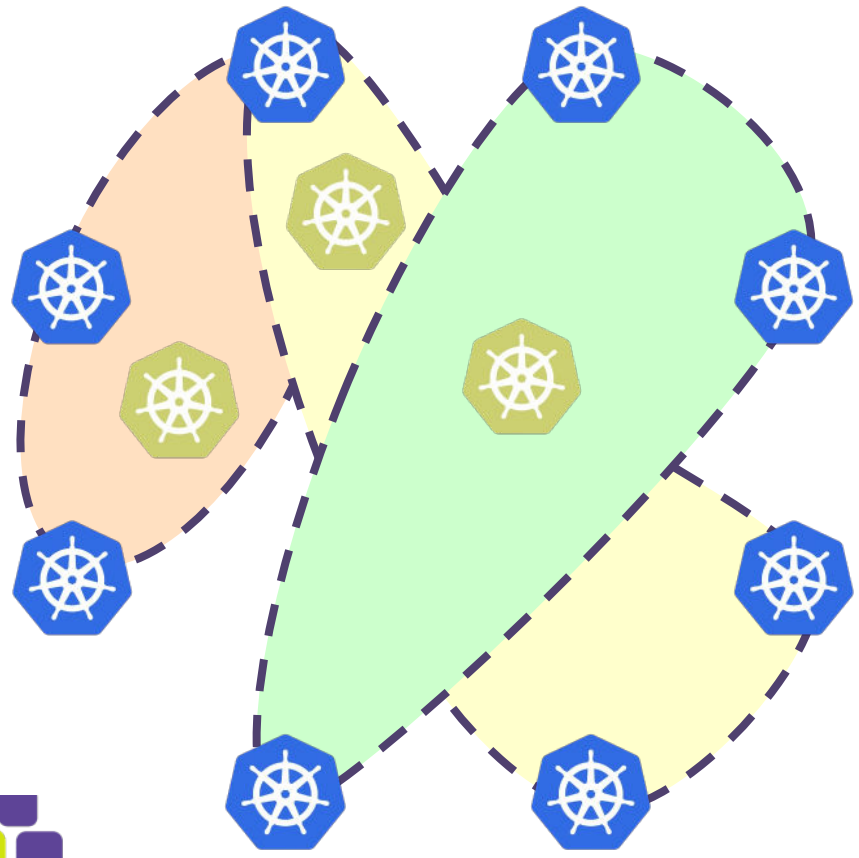
M Method (Algorithm, Protocol, Policy, etc.)

(4) Energy

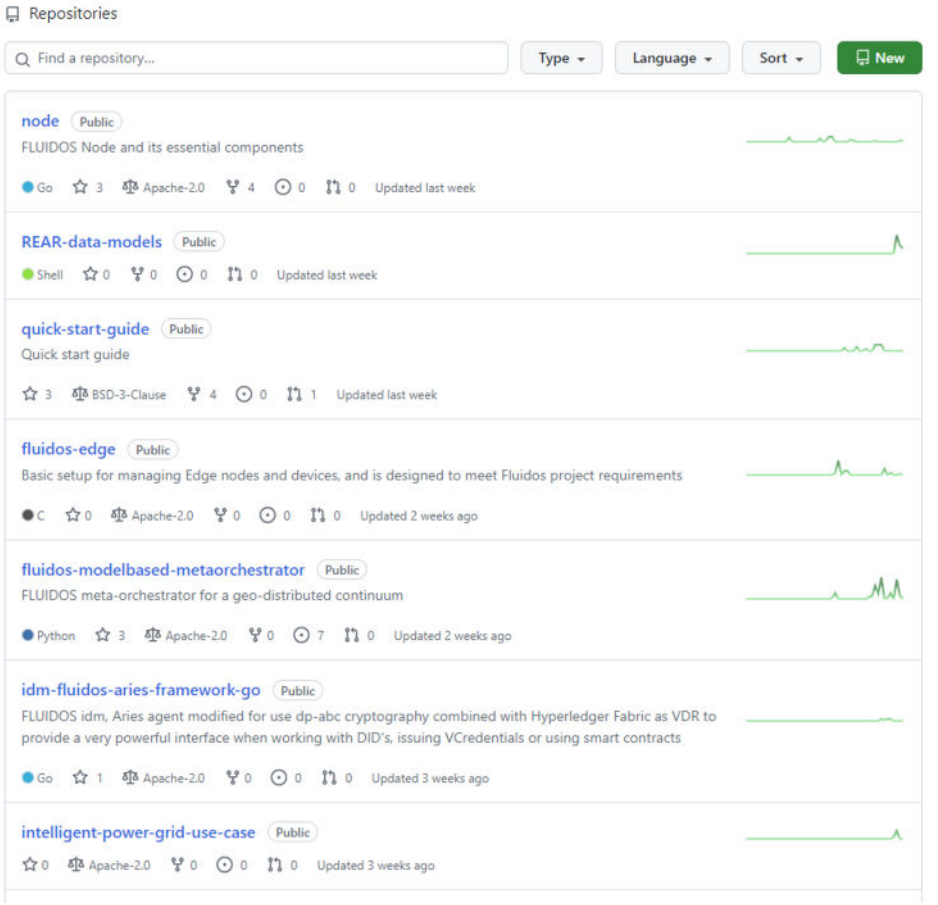

Less carbon
Reduce operational carbon
Reduce embodied carbon
Energy efficiency
Use cleaner electricity
Less infrastructure
Load shifting (Computing)
Increase utilization rate
Spatial load shifting
Electricity mix
Temporal load shifting
Load shifting
Data centres
Edge computing
IoT / deep edge
Effective infrastructure
Load predictions
Energy predictions
AI predictions

(5) Open-source

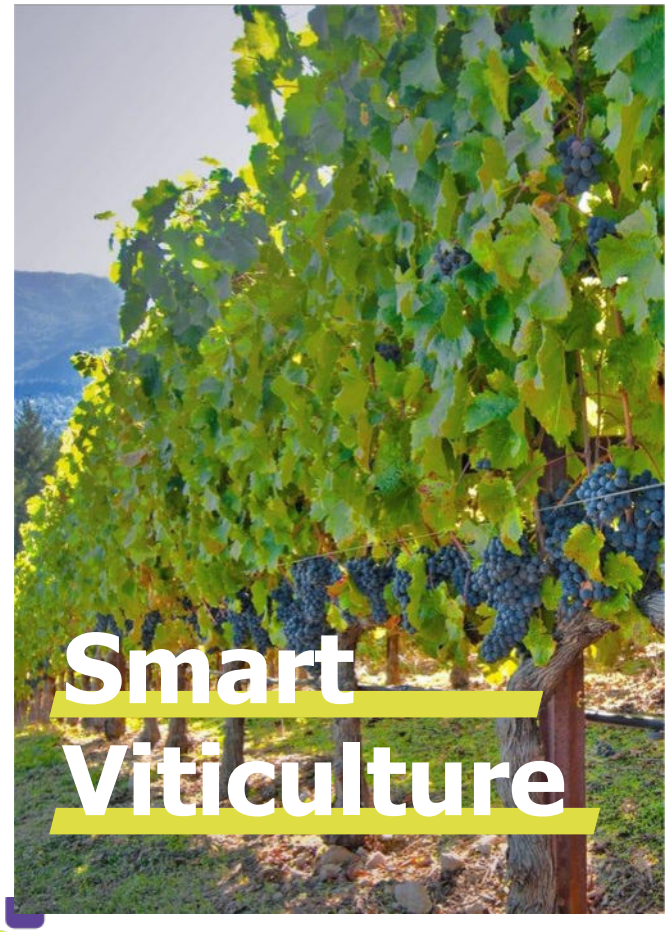
Kubernetes (K8s, K3s, etc), Liqo, KubeEdge



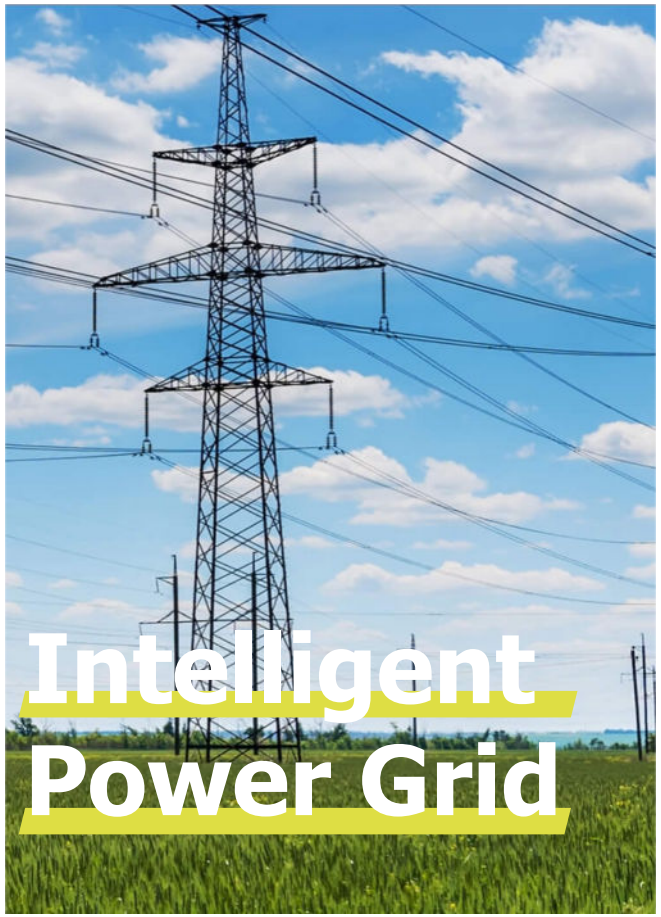
https://github.com/fluidos-project



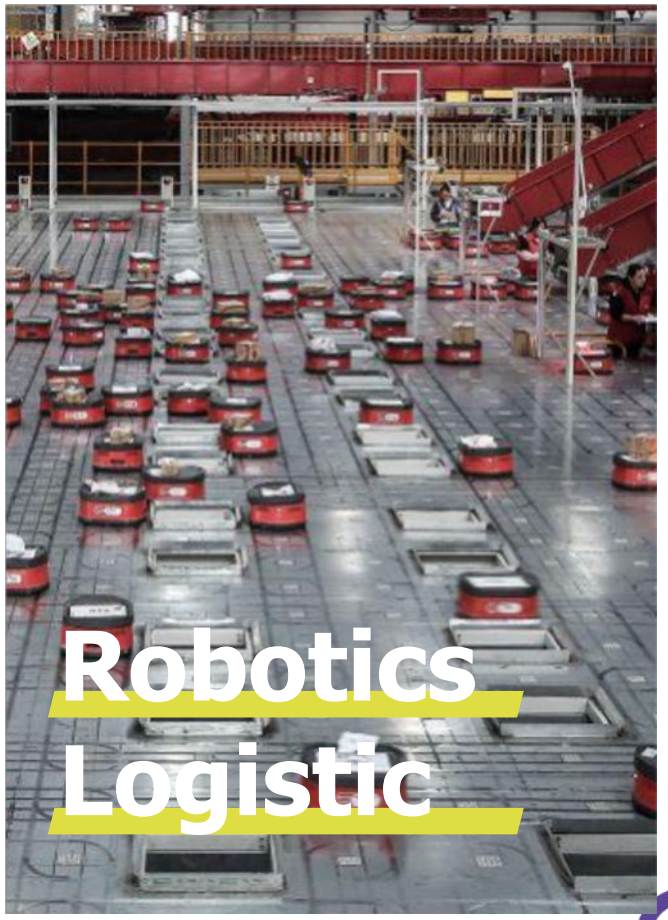
Use cases



Seamless deployment of services at device/edge/cloud level, with reduced devops overhead



Increased resiliency and survivability properties of critical ICT services for smart grids



Improved battery usage and decreased hardware cost through processing offloading

https://www.fluidos.eu/

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https://github.com/fluidos-project