Open Edge-to-Cloud Continuum with FLUIDOS

Flexible, scaLable, secUre, and decentralIseD Operating System

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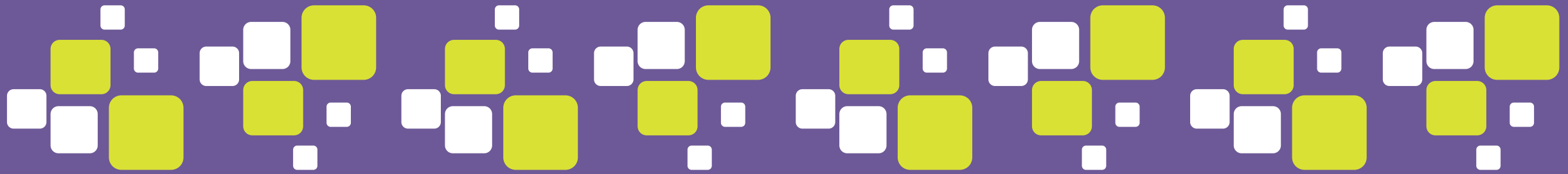
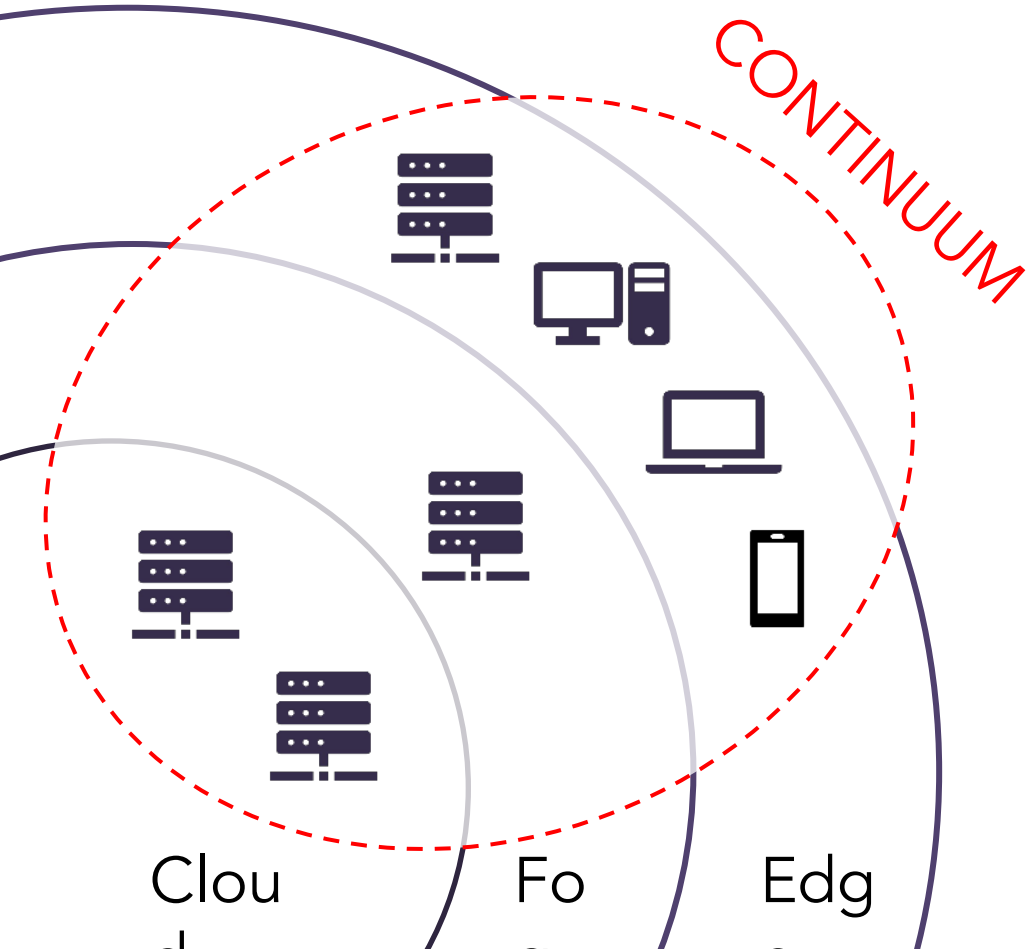


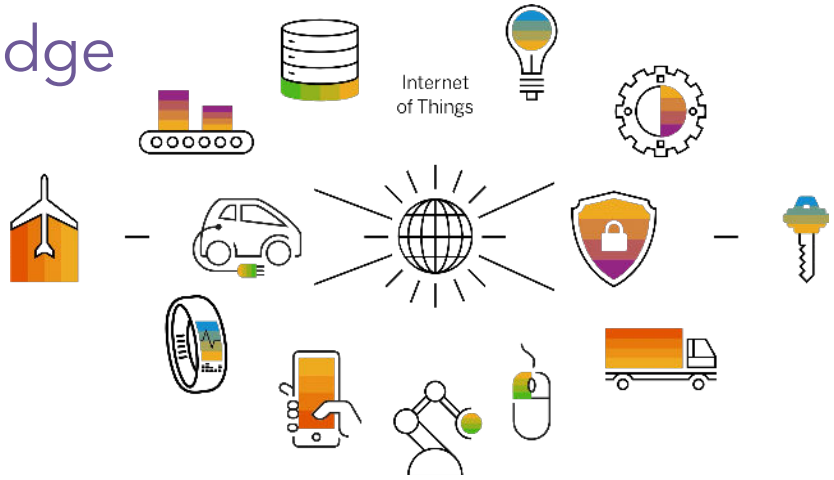
Many silos



Cloud

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

IoT/Edge



FLUIDOS

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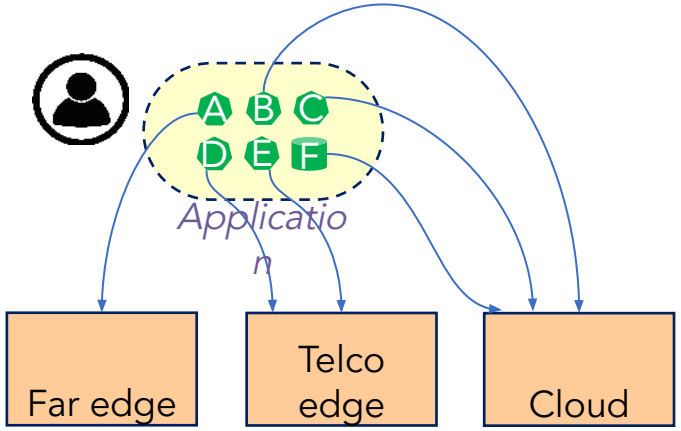
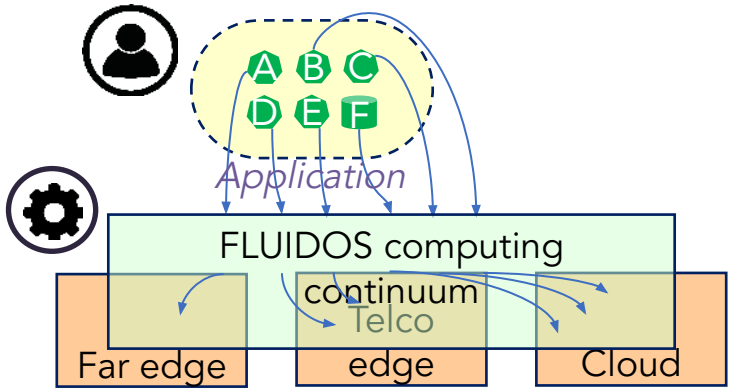
Cloud

FLUIDOS is all about transparency



a) Current silos-based computing continuum

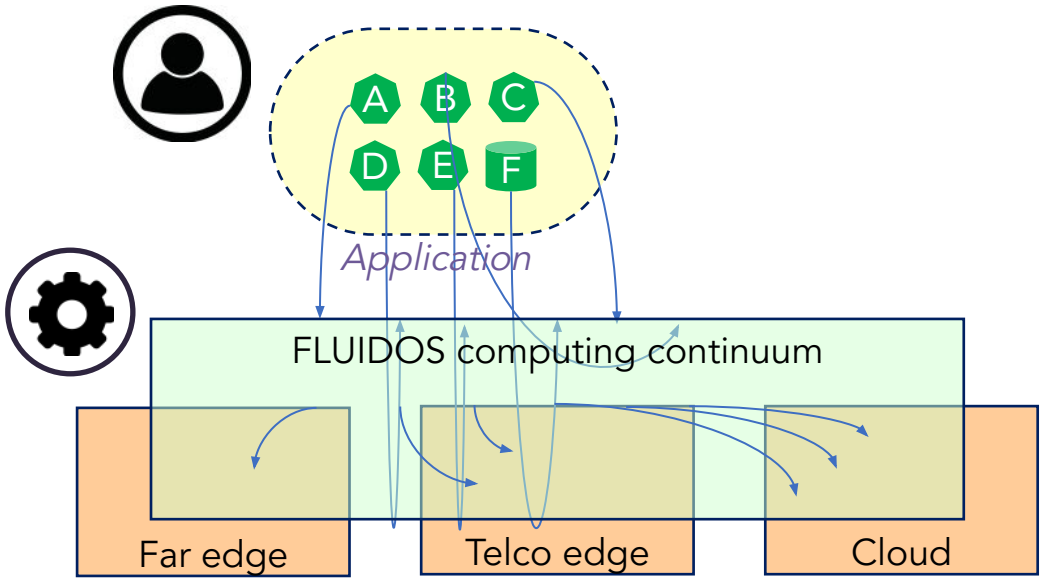


b) FLUIDOS computing continuum

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

- DEPLOYMENT TRANSPARENCY
- COMMUNICATION TRANSPARENCY
- RESOURCE TRANSPARENCY

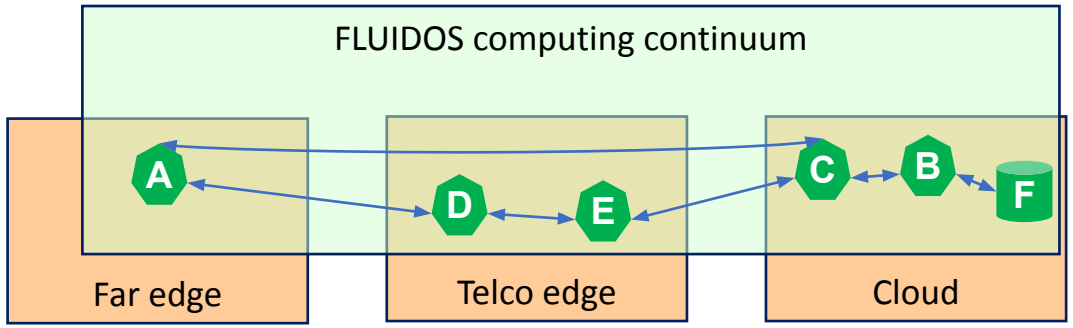
Deployment transparency



DEPLOYMENT TRANSPARENCY

When an application is deployed in the current silos-based continuum, each component must be explicitly configured to land on a specific Target.
FLUIDOS intent-based interface guarantees that each micro-service is started in the best location and provides also dynamic optimizations if required.

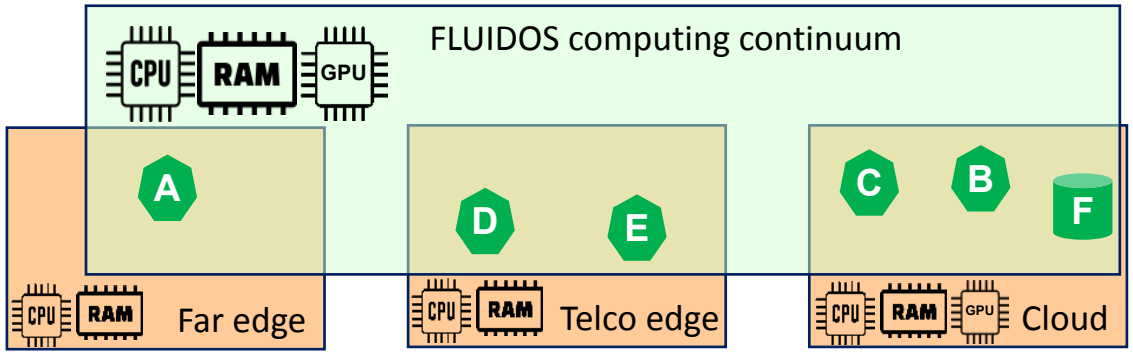
Communication transparency



COMMUNICATION TRANSPARENCY

With FLUIDOS, all communications between micro-services are mediated by the FLUIDOS virtual network fabric, which guarantees seamless communications independently from the location of each microservice.

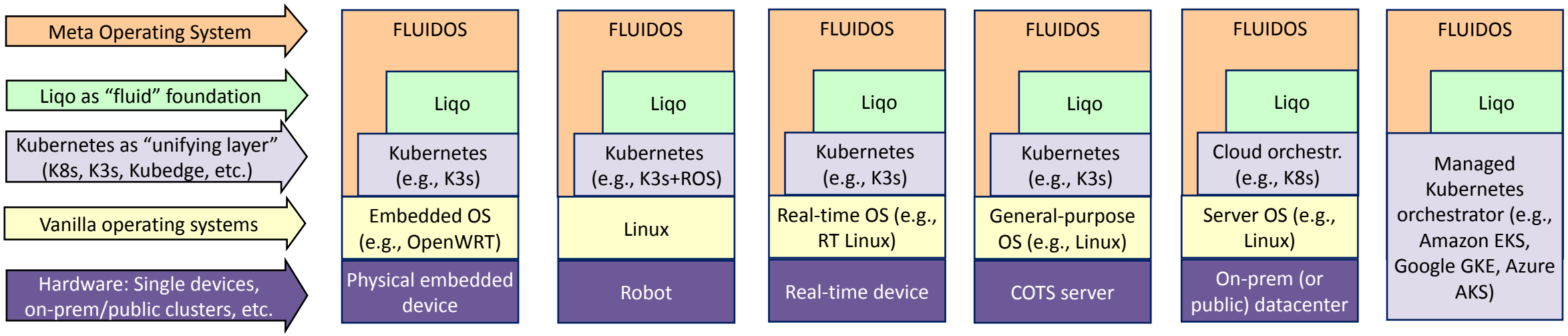
Resource transparency



RESOURCE TRANSPARENCY

FLUIDOS enables the creation of a virtual computing space spanning across multiple physical domains, enabling a service (which has been started in the virtual space) to leverage all the resources belonging to the same virtual domain, independently from their physical location.

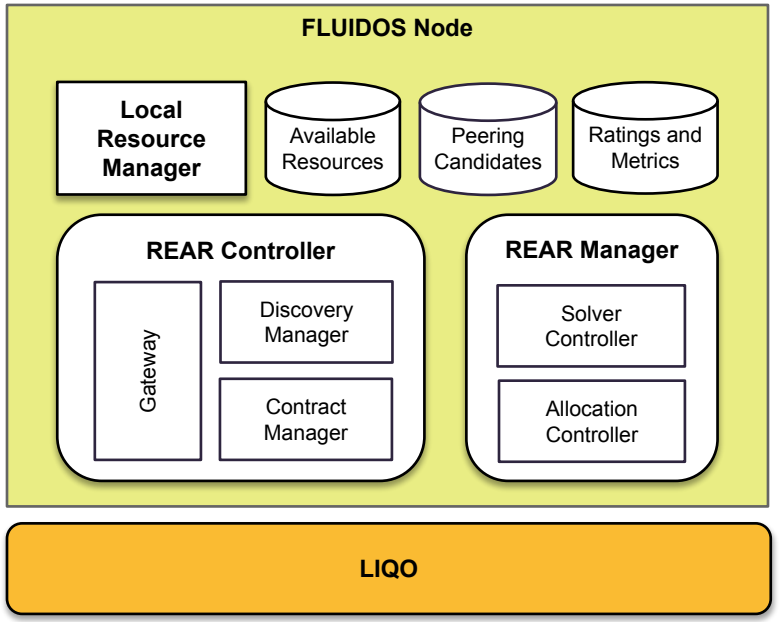
The FLUIDOS stack



The FLUIDOS work packages

- WP3: FLUIDOS NODE
- WP4: META ORCHESTRATOR
- WP5: SECURITY
- WP6: ENERGY
- WP7: USE CASES

The FLUIDOS node is the core component that enables the creation of the continuum.
It implements the logic behind the negotiation of resources and enforces the usage of such resource based on the agreement between parties.



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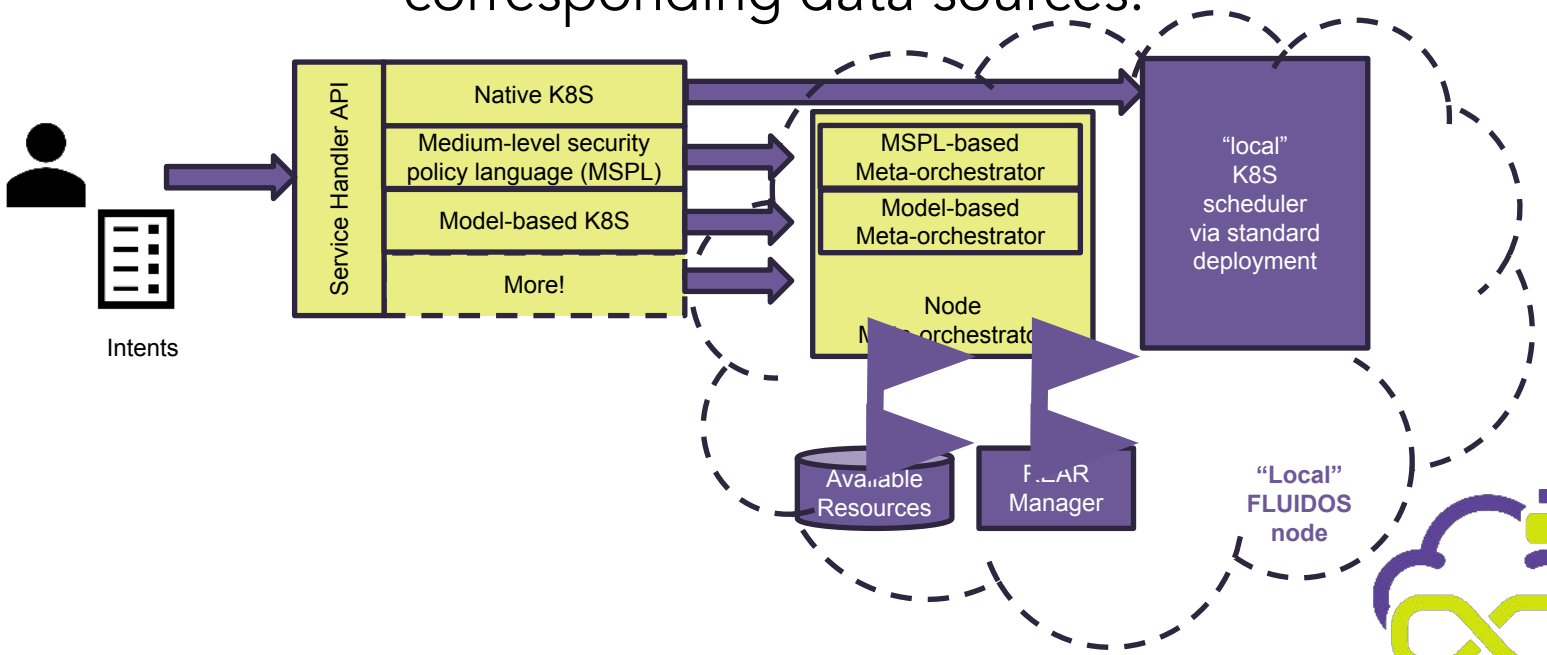
The FLUIDOS meta-orchestrator allows users to define the desired application architecture using intents, delegating to the infrastructure the task of retrieving and connecting services to the corresponding data sources.



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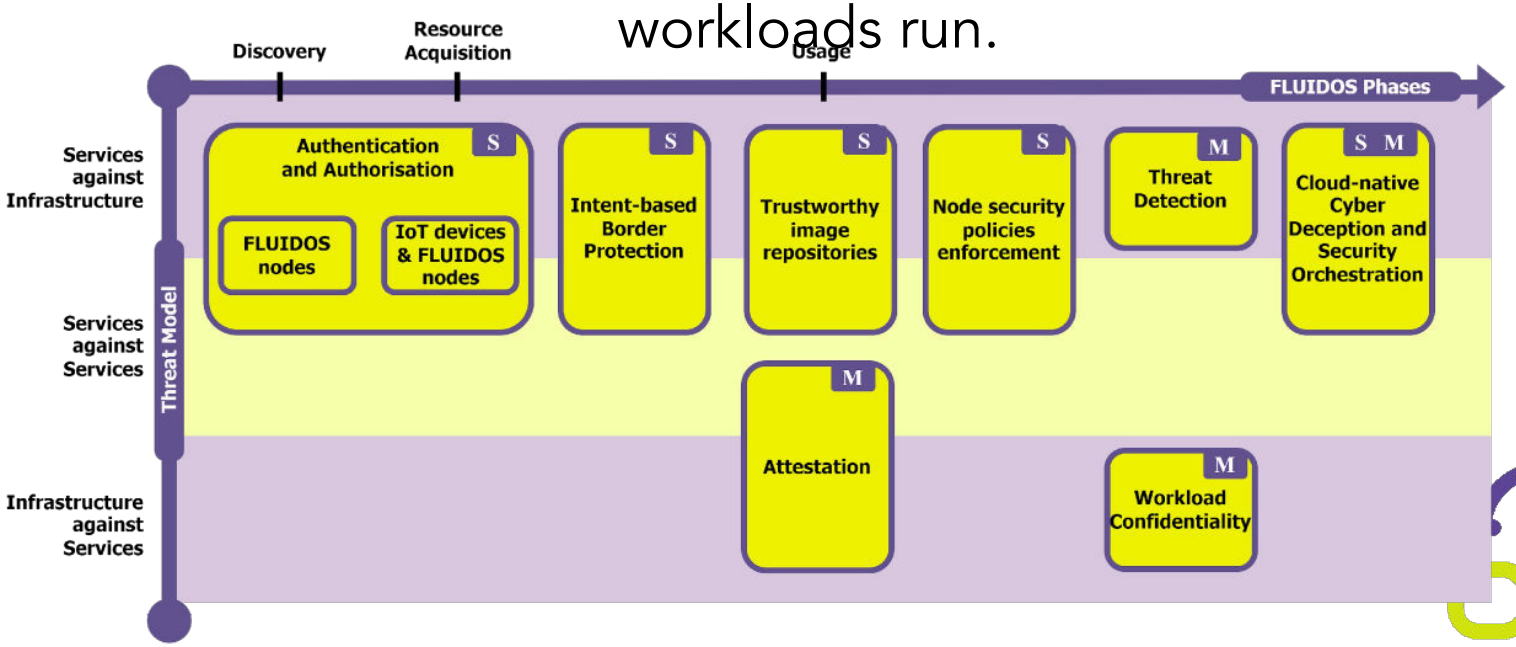
Resources in the continuum may encompass **hardware and software security capabilities** to achieve a higher degree of workload confidentiality and integrity, and to give tenants the ability to attest the environment where their workloads run.



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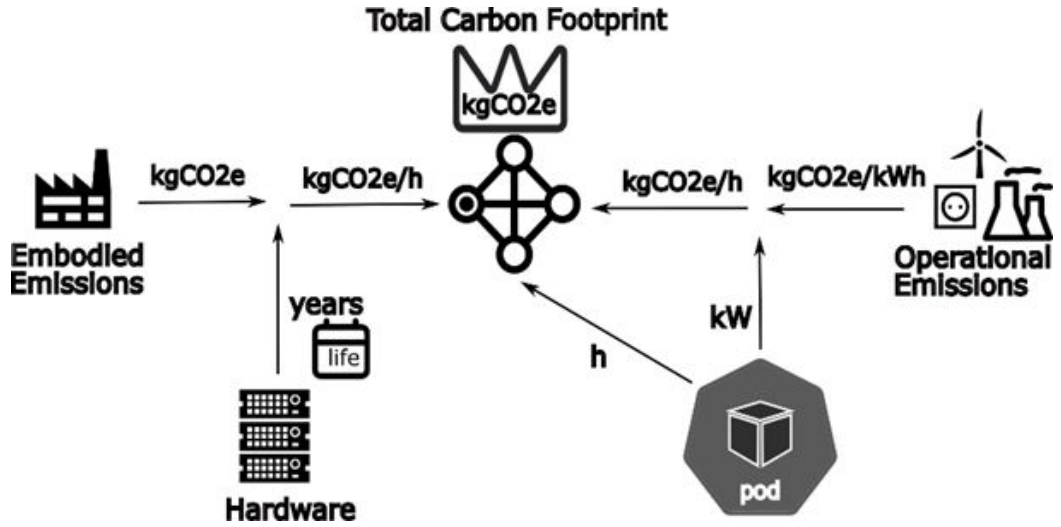
A promising decarbonization strategy for a computing continuum advocates for workload scheduling that intelligently shifts computational jobs in space and time to capitalize on locations and periods of lower-carbon electricity availability



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