



# FROM BUSINESS NEEDS TO DEPLOYMENT ON COMPUTE CONTINUUM

## AUTOMATED TRANSLATIONS AND RESOURCES SELECTION



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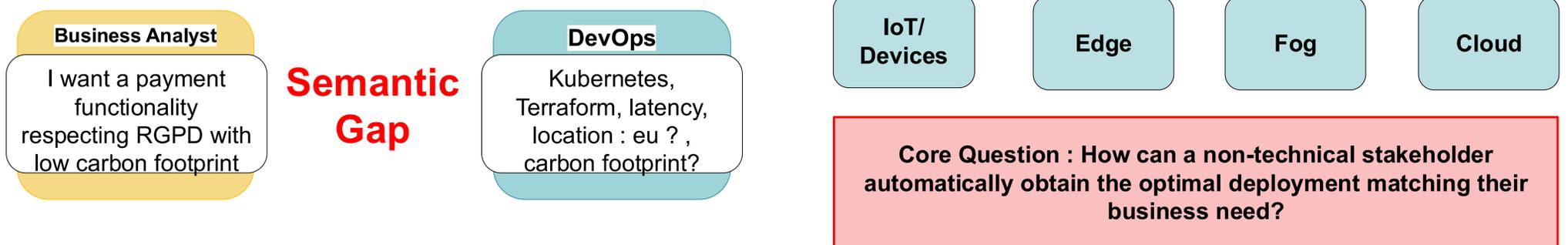
CIFRE PhD Theses with Devoteam research



### Context: A Semantic Gap Exacerbated by the Compute Continuum

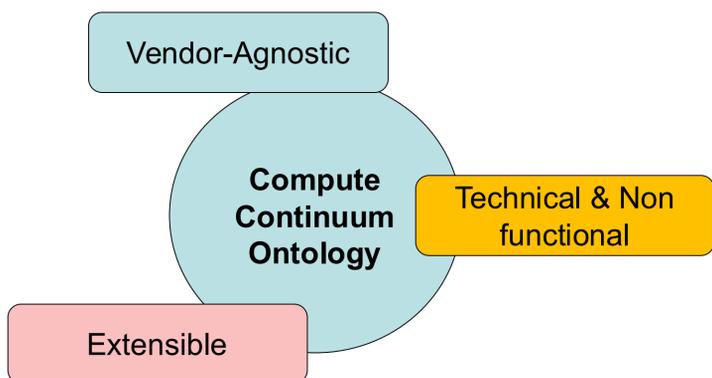
In every organization, two cultures coexist: business analysts who express their needs in natural language, and Dev & Ops profiles who operate complex technical infrastructures. Between them, a deep semantic gap slows down projects and generates costly errors.

The Compute Continuum exacerbates this problem: resources now span from IoT to public cloud, each with its own services, pricing, performance profiles, and constraints. Selecting the right combination requires rare, multi-domain expertise.



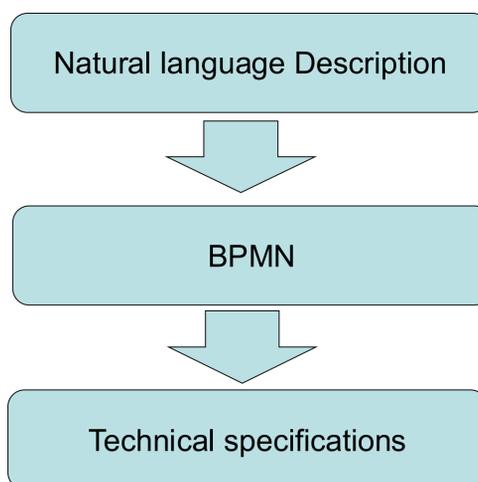
#### Obj. 1 : Describing resources

Existing models are fragmented: cloud-only, edge- only... None covers the full compute continuum in a unified, vendor-agnostic manner. The goal is to build a formal description framework covering both technical and non-functional properties of each resource.



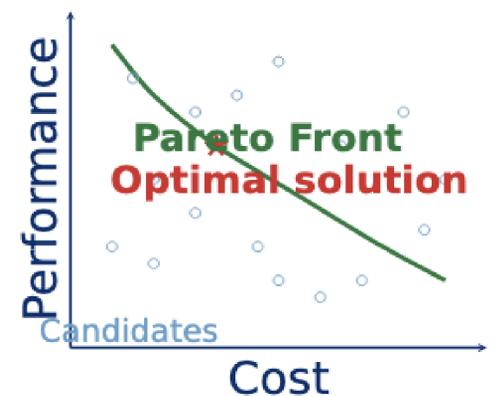
#### Obj. 2 : Translating needs into resources

The goal here is to create an end-to-end pipeline that transforms a natural language business need into a complete, validated, and justified technical deployment plan



#### Obj. 3 : Selecting optimal resources

Selecting the best combination of resources among a lot of possibilities, simultaneously satisfying all constraints: cost, performance, energy, compliance, and existing IS context



**Our Approach :**

- Proposing a brand new ontology by reusing existing standards
- Designing a generalizable methodology
- Validating our ontology

**Our Approach :**

- Proposing a methodology by using LLM to move from natural language description to Technical specifications
- Exploring controls on Language Models

**Our Approach :**

- Exploring classical multi objective algorithms and proposing a well suited frame for optimal resources selections
- Validating with real world testbed