

alter way

Automated Scaling in the Containers Era

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Context : Wolphin Project (FUI22)

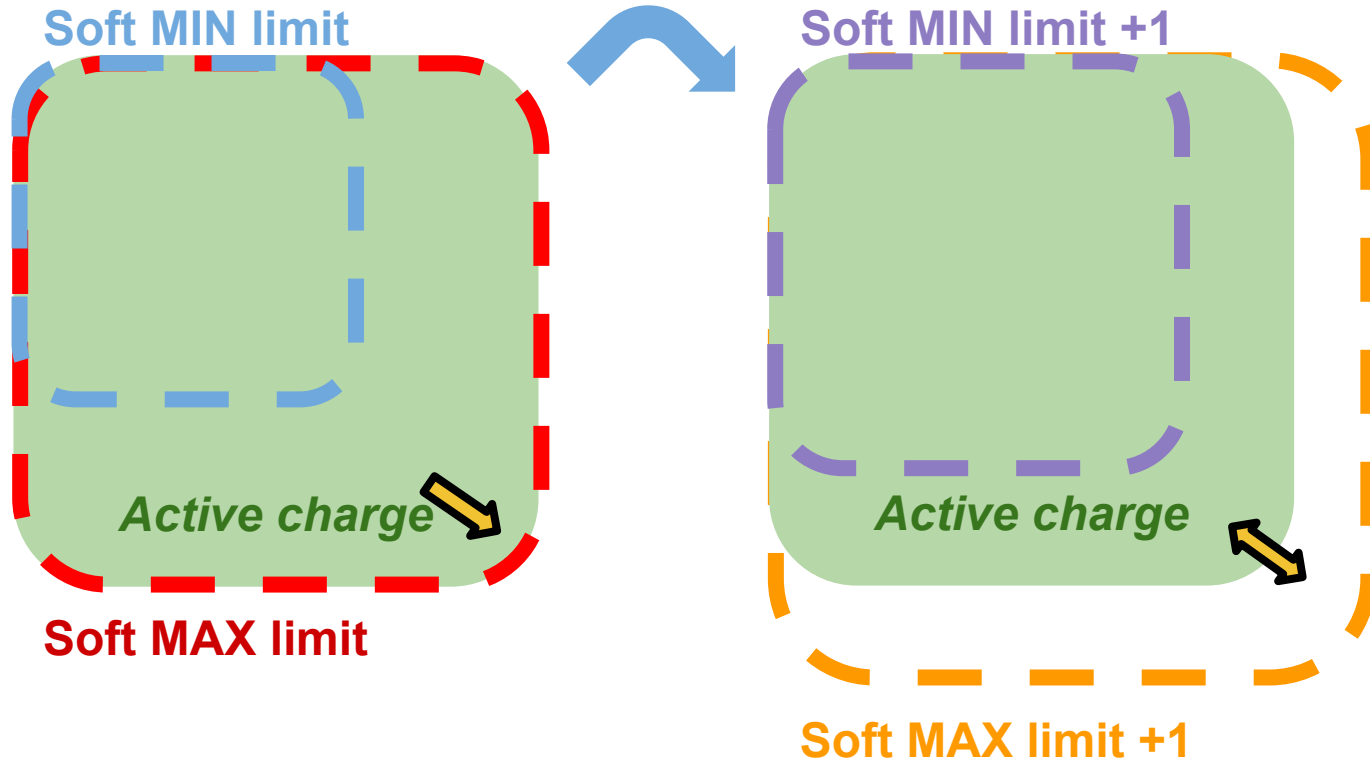
- **Main goal : billing services and cost optimisation**
- **To determine a new scheduling strategy**
 - ◆ **mixing academics works**
 - aimed to optimise scientific workload execution time
 - bound to a specific virtual machines hypervisor (GRID5000)

 - ◆ **with industrial requirements**
 - aimed to ensure web services availability over time and requests volume
 - using containerised services (Docker)

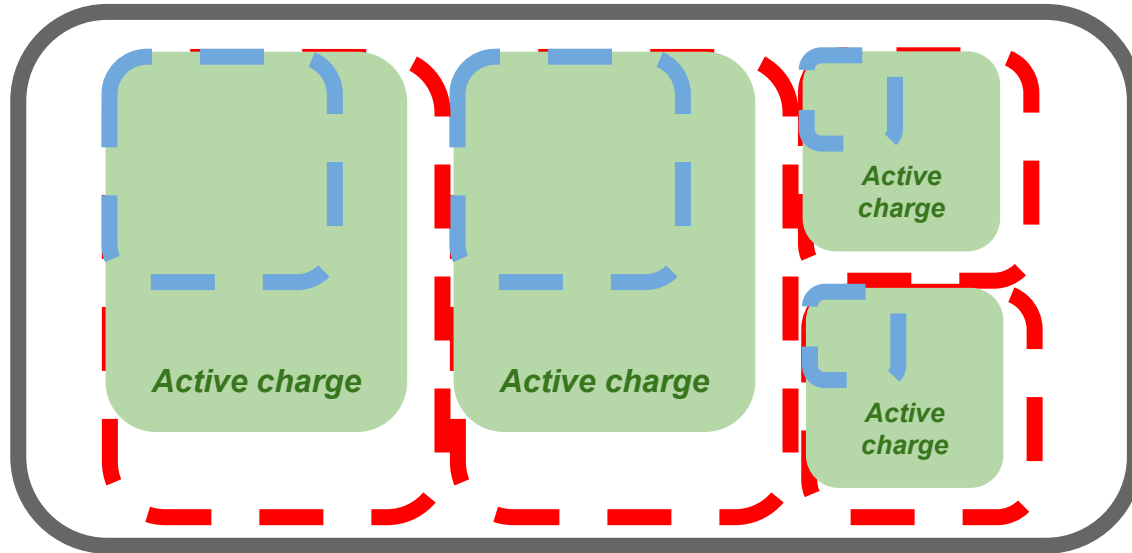
Scheduling strategy : our proposal

- **2 sides : controlled dynamicity and profiling**
 - ◆ Dynamic ranges in order to applying binpacking methods
 - detecting optimal container size
 - keeping elasticity mechanism
 - ◆ Time series analysis for clustering purpose
 - modeling time based profiles
 - colocation for best neighbors

Scheduling strategy : soft limits



Scheduling strategy : soft limits



- ⇒ *Binpacking while keeping elasticity*
- ⇒ *Better resources allocation*

Scheduling strategy : status

- **Industrialisation beginning at Alter Way**
 - ◆ implementation of the soft limits
 - ◆ analysis of time series for clustering
 - ◆ <https://gitlab.com/wolphin>

- **Multi-criterias model implementation by LIPN**
 - ◆ naive implementation within Docker Swarm
 - ◆ refined within the SAFC (*Scheduling and Allocation Framework for Containers*) compatible with Swarmkit
 - ◆ <https://lipn.univ-paris13.fr/~menouer/Wolphin.html>

THANK YOU !



To go further :

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