Khatiri Mohammed

Ordonnancement des tâches sur systèmes multi-coeurs hétérogènes

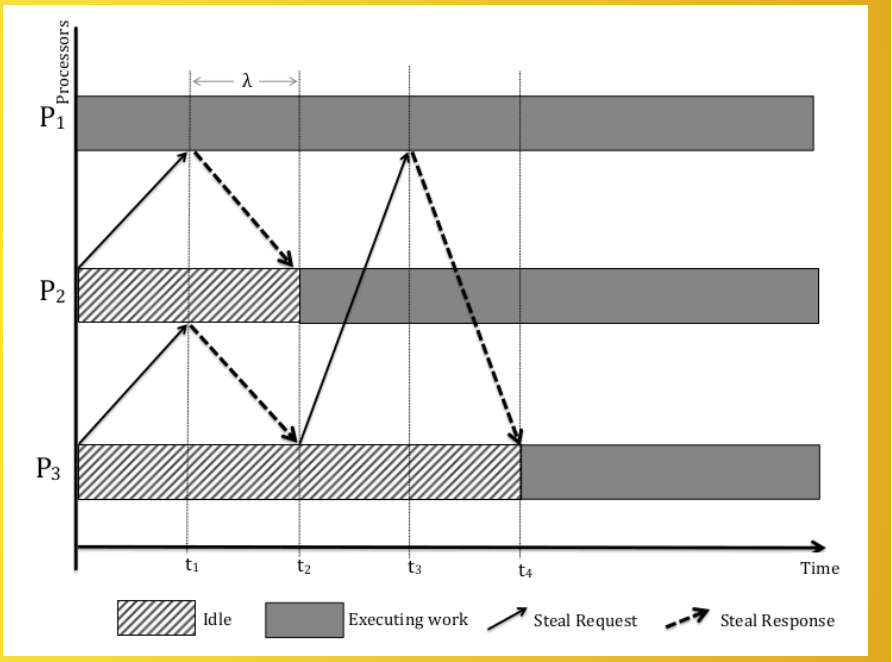
Thèse en Co-tutelle
France-UGA : Denis Trystram
Maroc-OUJDA : El Mostafa Daoudi

Work Stealing With Communication

[1] - M. Tchiboukdjian et All

- Without communication :

$$E(C_{\max}) = \frac{W}{p} + c.\log_2(W) + \Theta(1)$$



Our Result : Nicola, Denis and Frederic
(submitted in TOPC journal)

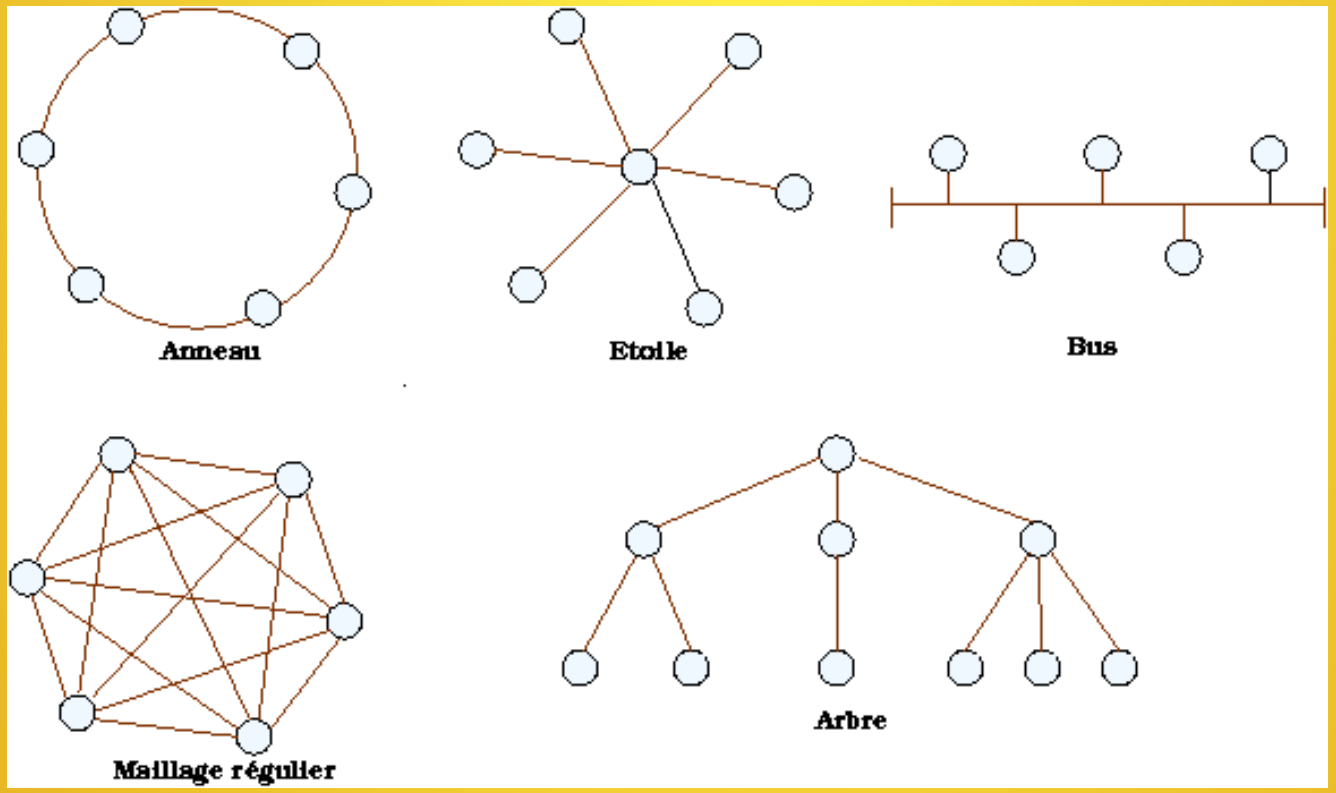
- With communication (Latency : λ) :

$$E(C_{\max}) = \frac{W}{p} + 2\lambda.c'.\log_2(\frac{W}{2\lambda})$$

Work Stealing With Communication

This work forms the basis of incoming studies on more complex hierarchical topologies :

- Communication cost inside clusters is small
- Communication cost outside clusters is important



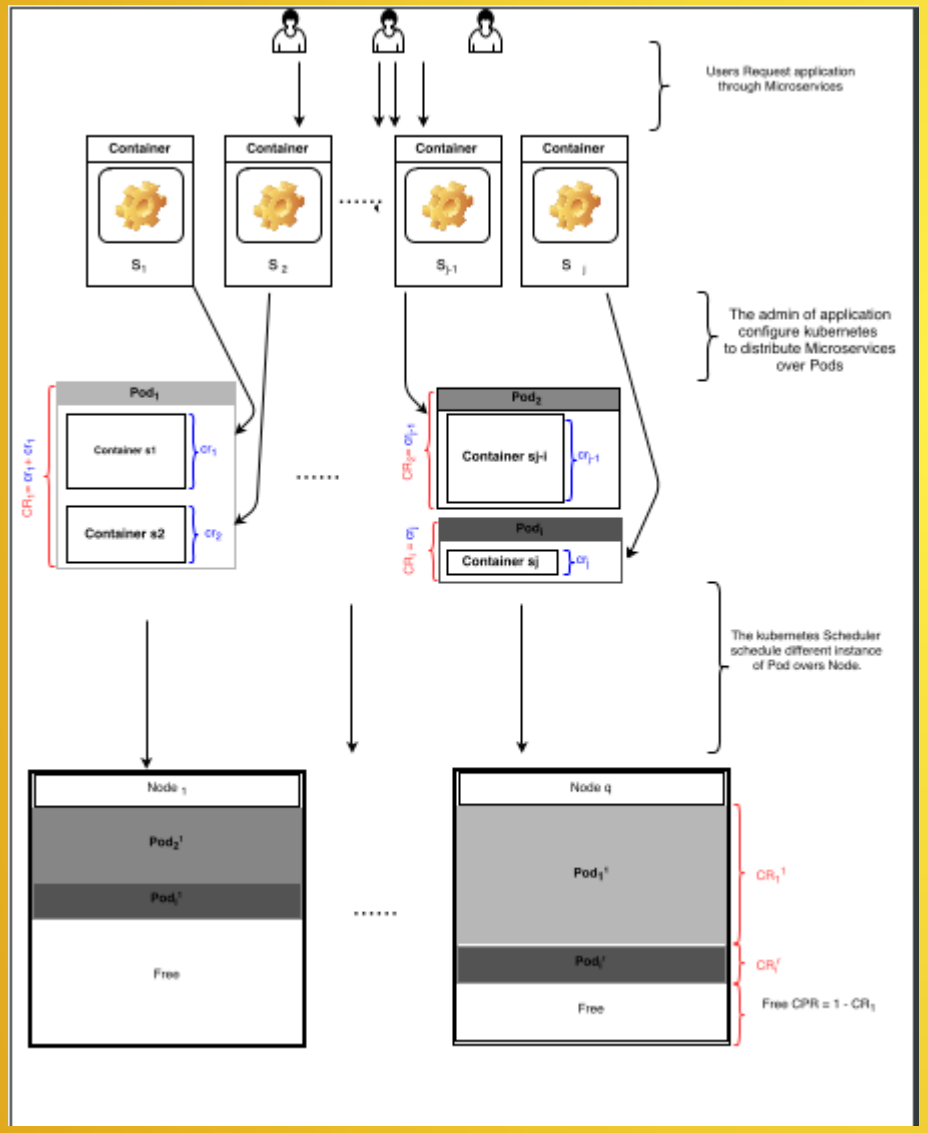
A dynamic load balancing problem in graph algorithms on GPUs (PageRanke)

Current work with Erik Saul (UNCC charlotte US) and Denis :

- **Work Stealing on GPUs :**
  - Put all tasks on different GPUs.
  - Work Stealing on GPUs using the indices instead of tasks.
  - PageRank as a problem (product Matrix Vector)

Distribution of Microservices on Pods

Work with Alfredo Goldman (USP Sao Paolo) and Denis



Configurations :

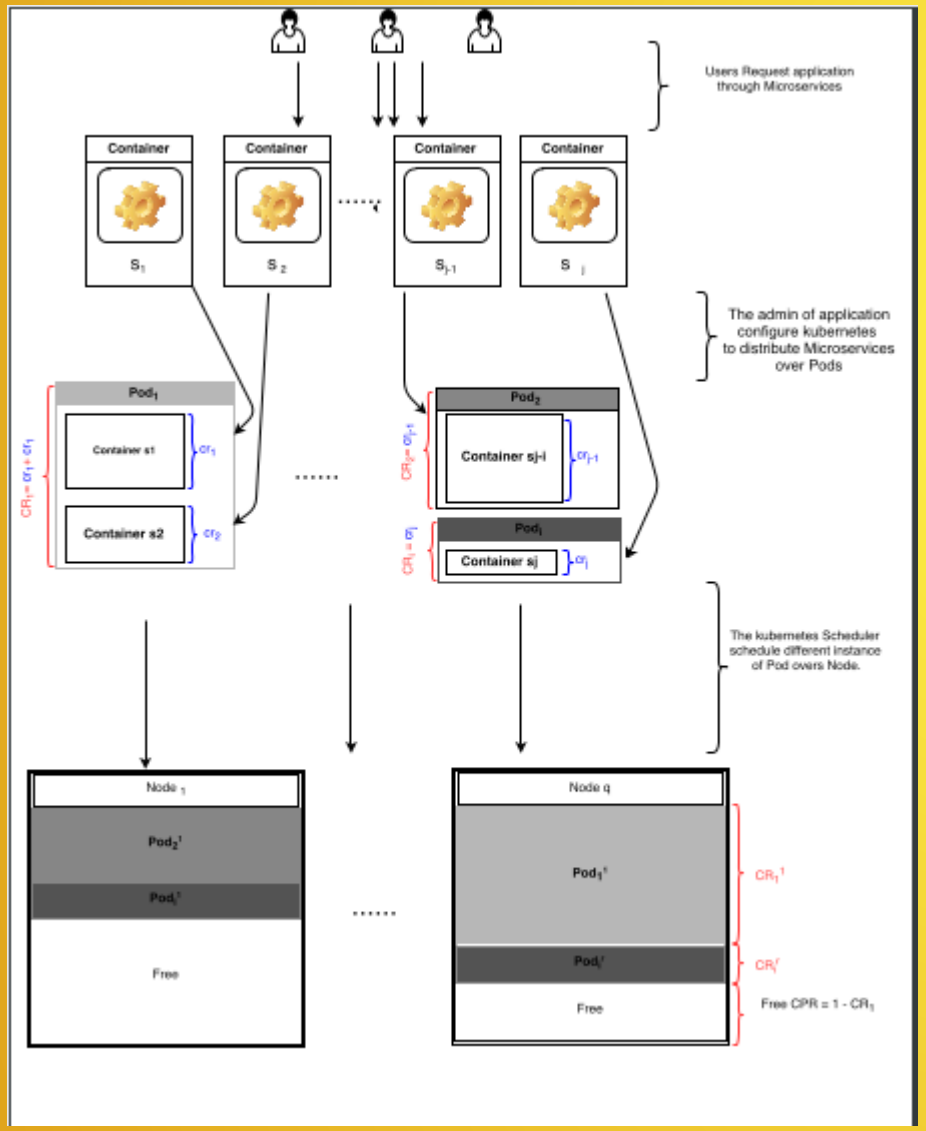
Users Request application through Microservices

The admin of application configure kubernetes to distribute Microservices over Pods

The Kubernetes Scheduler schedule different instance od Pod overs Node

Distribution of Microservices on Pods

Work with Alfredo Goldman (USP Sao Paolo) and Denis



Problems:

What is the impact of the first distribution of Microservices overs Pod?

What is the impact of this distribution on the Communication and on the Microservices,

What is the impact of this distribution on the auto-scaler?